See & Hear

THE NATIONAL MAGAZINE OF SIGHT AND SOUND IN EDUCATION

IN THIS ISSUE

Thirty-two Page Supplement of Training Films & Filmstrips

★ ★ ★

Preparing Our Schools for Defense Production

★ ★ ★

Background for Educational Television—*Special Feature*

★ ★ ★

Plus News and Reviews of Sound Films & Filmstrips for the Classroom

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Issue Six • Volume Six

1951

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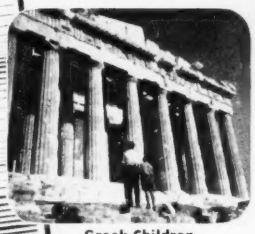

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Pond Life

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Five Classroom Films Honored By Freedoms Foundation Awards

♦ Educational motion pictures made an impressive showing in the Freedoms Foundation awards for 1950, with three of the four winners of second place in the 16mm division. In all, five films pin-pointed for the classroom were among the honor-bearers.

Two of the four productions that tied for second ranking were Coronet Instructional Films, *Our Living Declaration of Independence* and *Our Basic Civil Rights*. Also among the second-placers was *Thomas Jefferson*, of Encyclopædia Britannica Films, Inc.

EBF's *Benjamin Franklin* and others of the Great American series were among the motion pictures selected by the judges. *Lincoln Speaks at Gettysburg*, A. F. Films, Inc., tied for third place.

Both honored Coronet Instructional subjects may be had on loan through libraries or may be purchased from Coronet representatives. The two films "speak for freedom" from different viewpoints. In *Our Living Declaration of Independence* the life of an immigrant in America is contrasted with his years in Europe. Liberty as a fundamental necessity of the American way is emphasized in *Our Basic Civil Rights*. Coronet was a winner last year also with another of its instructional subjects, *Our Living Constitution*.

The cash awards, honor medals and certificates of merit from the Freedoms Foundation, which was born in 1949, go to individuals and groups who have made an "outstanding contribution to a better understanding of the American way of life by the things they have said, done or written," and never since '76 has the imprinting of that message upon all peoples been more important than it is today.

Editorial Notes and Comment:

♦ The previous issue of SEE & HEAR brought up our volume of editorial mail with a heart-warming and sudden response, mostly based on two key features: an editorial on Educational Television: Fact or Fable? and the excellent Pasadena report on Controversial Films. There wasn't any divergent opinion on the latter, we're glad to say, but there were a few imaginative "pioneers" who thought we were being pretty unprogressive with our mild cry of alarum on too-much enthusiasm for "classroom" television.

Apparently great things are just around television's corner but we wish the enthusiasm for it would come from places where we had certain knowledge of present-day practical use of the classroom audio-visual tools which already exist. That's what we were trying to say, that after all you might *first apply the basic principles of sight and sound in U. S. classrooms, as we now teach*, for just a little while before we start piping in Uncle Miltie and his friends.

At any rate, there's more about this subject on Page 45 of this issue and you'll hear *both* sides, as usual, in the pages of SEE & HEAR. ●

See & Hear

THE NATIONAL MAGAZINE OF SIGHT & SOUND IN EDUCATION

Issue 6 • Volume 6 • 1951

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Coronet Films Again Takes The Lead

Yes, again taking the lead in the 16mm educational film industry, Coronet Films announces an important reduction in prices on 49 of its 16mm sound motion pictures. This group of 49 instructional films includes all subjects produced prior to January 1, 1946. New rates on these films are $40 a reel for prints in black-and-white; $80 a reel for prints in color.

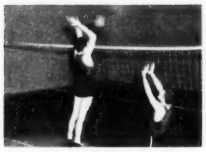
Prices Reduced On All Older Films!

All of these titles have been used with outstanding success in thousands of schools, churches and other organizations across the nation. Many of them are among the most popular subjects currently available.

Because of the popularity and age of these films, a substantial portion of the original cost of production has been amortized. Thus Coronet Films is able to pass along this unusual saving to you at a time when all other film costs are rising.

Aptitudes & Occupations

Sulfur & Its Compounds



Volleyball for Boys

Hopi Indian Arts & Crafts

To help you take advantage of this new price reduction, Coronet Films has included the list of 49 films in its revised Rental-Purchase Plan, permitting you to purchase Coronet Films for as little as $1 a reel a month! For details, fill out the coupon and return it *today!*

Gentlemen:
Please send me material and information as checked below:

☐ Price List on 49 Films. ☐ Film Rental Library List.
☐ Rental-Purchase Plan.

Name ..... Position .....

Organization or School .....

Street Address .....

City ..... Zone ..... State .....

Coronet Films CORONET BUILDING CHICAGO 1, ILLINOIS

SEE & HEAR *Camera*

A-V MEETING CALENDAR

Connecticut Conference on May 5

♦ The Connecticut Audio-Visual Education Association will hold its Annual Conference at the University of Connecticut on May 5. The Conference Chairman is Carlton W. H. Erickson, Director of the University Audio-Visual Aids Center.

Dr. Stephen M. Corey of Columbia University will be the keynote speaker. Leaders of discussion groups will be: Max R. Brunstetter, Samuel B. Gould, Reign S. Hadsell, Joseph T. Nerden, and John R. Read. Summarizers for these groups will be Louise Whaley, Richard Morton, Leonie Brandon, Laurence Spencer, and Marion McHugh.

Iowa's Two Summer A-V Workshops

♦ Films have an important place in program and activities of two summer workshops at the Iowa Lakeside Laboratory at Lake Okoboji in June, starting a series of summer gatherings of educators.

While the more important to the field of the film is the Audio-Visual Workshop, June 25 to 29, there will also be film showings and forums each evening at the Adult Education Workshop, June 18 to 23.

Emphasis at the audio-visual gathering will be on equipment, sources of materials, selection and evaluation, utilization methods, administration and budgeting, architectural layouts, and photography. Each student is urged to bring a camera if available.

Morning programs will include group discussions and demonstrations. The afternoon sessions will be sectionalized as follows: elementary level materials, secondary level, equipment, administration and photographic.

At a film festival nightly at the Gulf Point State Park Lodge, new productions for elementary, secondary and adult education will be screened and evaluated. The final night of the workshop will focus on a lecture at the laboratory.

Oklahoma's 12th Meeting in June

♦ The twelfth annual Audio-Visual Education Conference of the University of Oklahoma will be held June 28 and 29 at Norman.

ALA Observes 75th Anniversary

♦ The seventy-fifth Anniversary Conference of the American Library Association opens July 8th in Chicago, with headquarters and exhibits at the Stevens Hotel and the Palmer House.

New Jersey State Teachers Hold Educational Video Demonstrations

♦ Television in education is the subject of a series of demonstrations on April 13th at the New Jersey State Teachers College at Montclair. The first, "Telecasting an Educational Program," will be led off by Benjamin Karp, assistant professor of art, speaking on "What's New in Art." Directing the telecast will be Edward C. Rasp, head of the Audio-Aids Laboratory, assisted by students of the Montclair Television Workshop.

James L. Caddigan, director of programming and production of the DuMont Television Network, will speak later on the status and outlook.

UNITED WORLD FILMS'

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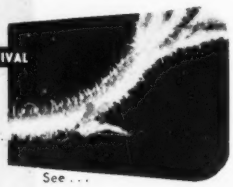
SEED DISPERSAL

See . . . seeds scatter and sprout

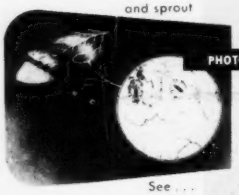
PLANT SURVIVAL



See . . . special plant mechanisms

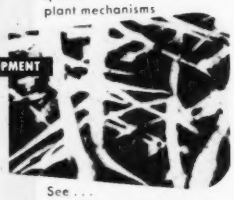
TEACHES ESSENTIAL PROCESSES

PHOTOSYNTHESIS



See . . . plant cells at work

ROOT DEVELOPMENT



See . . . plant roots growing

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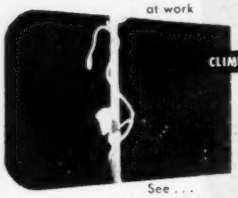
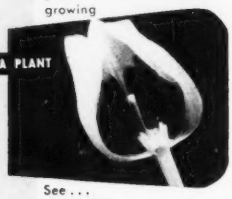
CLIMBING PLANTS



See . . . plants reach for sunlight

LIFE CYCLE OF A PLANT



See . . . seeds grow into plants

UNITED WORLD FILMS, INC.

1445 PARK AVENUE NEW YORK 29, N. Y.

Preparing Our Vocational Schools to Meet the Manpower Shortage

SHOP TEACHERS AND AUDIO-VISUAL SPECIALISTS CAN COOPERATE FOR DEFENSE

AUDIO-VISUAL METHODS and materials serve education best when they are created and applied to meet well-defined needs. The field of vocational instruction is one of those branches of the curriculum where they are not only clearly useful but also extremely well-situated from the standpoint of available materials.

Once again, the nation faces the same kind of critical shortage of skilled and semi-skilled manpower as in the previous decade. But this time tested techniques and ready-made materials are ready to meet the problem . . . if vocational people will put them to use.

Labor Department Confirms Critical Need

In March, the Department of Labor's Bureau of Employment Security reported local occupational shortages in many sections of the nation as manpower requirements for defense production assumed growing importance. Coincidentally, one of these shortages was among vocational training teachers as well as professional, skilled, and semi-skilled workers.

"In Kansas City," said the Kansas City Star editorially on December 9, "the shift to military production is developing fast and still there is no local program to train persons for the jobs." An excellent response to defense job appeals in Kansas City revealed that few of the applicants had any training in the minimum skills required for these tasks.

This is clearly a *preparatory period*, moreover, during which major contracts have still not been let by the military or the first stages of design and tool-making are still under way. A simultaneous build up of the armed forces through an increased draft quota and new defense production contracts in the field would create a real crisis requiring the utmost effort on the part of vocational schools and creation of new training centers.

Preparatory steps urged upon schools include a review of modern audio-visual techniques as they may be applied to specific training procedures. These do not limit the methods or materials to motion pictures but involve all devices proven useful to industry itself such as the opaque or overhead projector, the slide and slidefilm, and the sound or silent motion picture.

In a recent check on Navy training methods, for example, vestibule training included the use of a centrally located transparency projector on which steps of various jobs were depicted for the guidance of mechanical trainees. Preparatory steps had included the showing of motion pictures on the equipment being studied. One of the interesting coincidences of this film program was that trainees showed definitely greater *inclination* toward the work. Their mental preparedness for actual practice work was considered as important an advantage as any increased amount of skill gained from the visual impression. In defense industry this is readily translated into less turnover, better quality of work, better adjustment, etc. and therefore into more production.

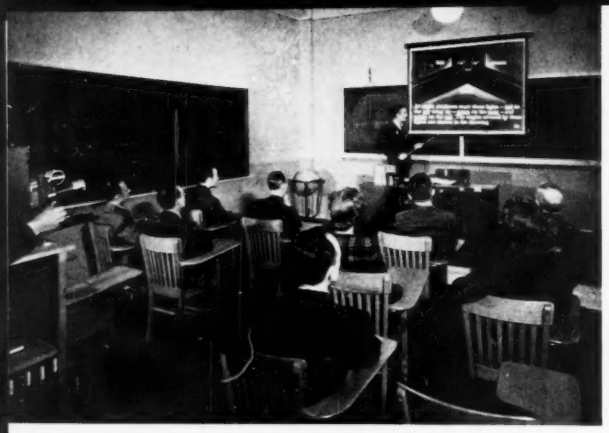
Index of Training Films Now Available

The available film and slidefilm tools for defense training are enumerated in the new and highly authoritative Index of Training Films just completed for vocational school and industrial use. A total of 2900 motion pictures and slidefilms are listed and described in the third edition of this film guide. Sources are also given.

Thirty-two of the full eighty-eight pages in the Index are included with this issue of See & Hear. This generous

(CONTINUED ON THE FOLLOWING PAGE)

Trainees learn to understand machine skills better through film preparation and follow-up.



SLIDEFILMS ARE EFFECTIVE *for shop instruction where diagrams, technical drawings, etc. make clearer the information needed by trainees. The low-cost makes these 35mm strips of film widely applicable in vocational schools.*

Preparing for Production:

(CONTINUED FROM THE PRECEDING PAGE)

classroom use. The entire book is the result of many sampling contains many listings applicable to vocational months of editorial research which included the elimination of out-dated titles and the addition of a sufficient number of new ones to make a net increase of 300 films over the previous edition which listed only 2100.

Audio-visual departments in city and county school systems and especially those dealing with high schools and colleges should be most familiar with the needs of the shop training field. Since many of the excellent subjects available are available on free loan or low-cost purchase a large budget is not a prerequisite. Commercial sources such as Encyclopædia Britannica Films, The Jam Handy Organization, and Coronet have also made valuable contributions to this field. Prominent sponsors of worthwhile technical films include both General Electric and Westinghouse, General Motors, the Aluminum Company of America, and hundreds of others.

Audio-visual leaders should also give utilization aid to shop teachers. Experimental work undertaken at the New York State School of Industrial and Labor Relations at Cornell University in a recent audio-visual workshop for industrial trainers is typical of the kind of help shop people need. Here's a concrete example of one experiment: the presentation of a skill training film to a group on how to perform a complex job with a follow-up demonstration by one of the group attempting to perform the task from film facts presented only. These points were summarized:

1. The mere showing of a film was not enough to have a transfer of the skill.

2. The follow-up of a skill training film must be action and not only discussion.

3. Discussion may help as a follow-up of certain skill training.

The training film is no panacea or short-cut to effective learning. But in the hands of a fairly skilled instructor it can become an invaluable ally in helping make a good learner better skilled in shorter time. The time has come when education must prepare again to help deliver these urgently needed skills as an essential part of our national defense. Let the audio-visual specialist and the shop teacher get together to do that job faster and better.

Scott Fletcher to Join Ford Foundation

★ C. Scott Fletcher, president of Encyclopædia Britannica Films, has announced his resignation from that post to accept the invitation of Paul Hoffman, director of the Ford Foundation, to join that organization in May. With Robert M. Hutchins and Chester R. Davis, co-directors, Mr. Fletcher will help guide the work of the foundation in the field of human welfare.

An enviable business and educational career which has included worldwide travel as an executive for the Studebaker Corporation, the executive directorate of the Committee for Economic Development in World War II, and the presidency of this pioneering educational film production company is to be continued when Mr. Fletcher assumes direction of the adult education activities of the foundation program.

He will also be long remembered for his vigorous efforts on behalf of the Film Council of America which he served for two years as its leading fund-raiser and chairman of the Finance Committee. A trustee of CED and of the China Institute of America, Scott Fletcher has also been a member of the Board of Editors of Encyclopædia Britannica and director in charge of the original publication of the Great Books of the Western World.

♦ A very comprehensive review of county film library operations, well-illustrated by maps and charts, is already in type for your next issue. Another special feature will review the opportunities for audio-visual materials in the graphic arts, including a beautiful two-color insert section already printed.

Educational television gets further attention, pro and con, as well as numerous articles from the field as we return to the regular format of SEE & HEAR following this special effort on behalf of the nation's growing manpower shortage in which our vocational schools and classrooms are directly involved.

Special Word of Editorial Acknowledgment

♦ Credit is due Mary Elizabeth Colman for the editorial text accompanying our recent pictorial feature on British Columbia's visual education division.

SEE & HEAR SPECIAL FEATURE

A 32-Page Section of The Index of Training Films

★ The following pages represent a sample section from the new and revised Third Edition of the nationally-known INDEX OF TRAINING FILMS of which nearly 40,000 copies have been distributed in recent years to American industry.

Directly applicable to our schools as a reminder of the vast audio-visual resources already available to help spark defense production training now becoming an urgent problem, the INDEX section should be passed along to shop instructors and others interested in these films. Complete copies of THE INDEX (which lists 2,900 films in its 88-page volume) are available to schools through special arrangement of SEE & HEAR at 25% discount off the regular $2.00 list price—these professional copies may be purchased at $1.50 and will be sent postpaid if cash or check accompanies the order to THE INDEX OF TRAINING FILMS, 150 E. Superior, Chicago 11, Illinois.

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Reader's Key to Best Use of the INDEX

FACILITATION of speedy reference by the user has been the objective of the editors of THE INDEX, both in the arrangement of the material and in limitation of the description of each film to an objective presentation of its content. Motion pictures and slidefilms are listed in separate groups.

CLASSIFICATION: As will be seen in the Table of Contents, the classification is by industries and by sub-categories within the industry where subdividing will benefit the user.

TITLE DATA: Within each classification the film titles are listed alphabetically. Immediately after the boldface title appears the length or running time, as *(13 min.)* for a motion picture, and *(24 frames,* or *pictures)* for a slidefilm. Where possible the year the film was produced is stated (example: *1949).* Then follows the information of a sound or silent treatment, abbreviated as follows: *16sd* for sound motion pictures, *16si* if silent. The symbol *sd* denotes sound in the case of a sound slidefilm. If the production is in color the fact is stated in connection with the foregoing.

PRICES: Where prints are available for a rental price or purchase, that information follows the data on sound and color. In many instances, where a checkup against the Second Edition of THE INDEX has indicated stabilized prices the actual amounts are given. In most cases, however, because of the variable factors on the national and international scene at the time of going to press, actual price quotations have been omitted. In either case, consult the distributor of the film.

SOURCES: At the end of the opening paragraph containing the title is given the source for obtaining prints. This information is in abbreviation and is keyed to the Source List which begins on Page 82. *(Example: Modern,* for Modern Talking Picture Service, Inc.)

The motion pictures or slidefilms are in general obtainable from two main sources: (1) commercial libraries or producers that sell or rent films, and (2) free loan by sponsors or their distributors, requiring only the payment of shipping charges, both ways, one way (in a few cases neither). A few scattered instances of nominal service charges appear. In some instances the sponsors also have films or complete programs or "packages" rentable or purchasable, as in the case of Westinghouse Electric Corporation.

A price figure or the words "rental" and "purchase" for the most part indicate a commercial source, whereas "free loan" sources may usually be recognized by industrial company names, *such as General Motors.* However, the fact of a commercial source does not necessarily denote the film is to be had only at a price. This is clarified wherever possible by the appearance of the word "loan" or "free loan." Film distributors *(Assn. Films, EFFilms, etc.)* are listed after the loan or purchase data in the opening paragraph, the sponsor at the end or in hyphenation with the distributor *(Example: USOE-Castle).*

FILM DESCRIPTIONS: An important innovation in this Edition of THE INDEX is a device to indicate at a glance the newer films. This is a bold dot preceding the description of the production.

The Editors have purposely avoided any indication of a critical evaluation of the production throughout the treatment. An impersonal and informative synopsis of essential content is the aim. Prospective users of the films are advised to *preview all films before class showings* for two reasons: (1) precaution that the film treatment is satisfactory for the purpose intended, and (2) adequate preparation of the training or teaching lesson. It is important also that a booking be requested as far in advance as possible, both to give the distributor time to provide the print, and to avoid disappointment and an upset schedule for the user in the event a print is not yet available.

CAUTION: Most of the motion pictures listed in THE INDEX are sound films. *Do not attempt to show these single-sprocket films on silent-type projectors* equipped with double sprockets. Silent "home movie" apparatus will mutilate sound track film. *Sound slidefilms* require a combination of a standard 35mm slidefilm projector *plus* the accompanying "slow-speed" turntable. Additional cautions are to be found in the boxed material interspersed through THE INDEX pages.

INVITATION: To users of this material, whether teachers or company audio-visual supervisors, if any company's films are not included and are available for loan or rental or purchase, the Editors issue an invitation to send the listings for review to THE INDEX OF TRAINING FILMS, 150 E. Superior Street, Chicago 11, Illinois. The need of frequent revision, amendment and elimination of obsolete titles is recognized, and prompt receipt of such information will be welcomed.

Comment and suggestions also are invited, as practicable training assistance is the primary objective of this directory, and the industry itself in reality supplies the editing of it. The subjects listed have been limited to this category and also to those for which sufficient prints were considered available on a national or regional basis.

The Editors will be happy to receive your comments on new visual training techniques and projection setups, as well as reports on effective utilization of training films in school, shop, factory or office. Many of these are given attention in the columns of BUSINESS SCREEN MAGAZINE and others will be applied to the fourth edition of THE INDEX. Your attention is called to pages 63 and 66 on which appears information regarding other useful Guides.

—THE EDITORS

Aviation Industry

AERODYNAMICS

MOTION PICTURES

Aerodynamics: Air Flow. (18 min) 1941. 16sd-$24.26. AAF-Castle. TF1-160.

Shows, through the use of smoke, the flow of air around airfoils. Skin friction, streamlining and the trend in design toward high speed airfoils, the use of wing flaps and their design, and the effect of ice on leading edges are shown.

Aerodynamics: Forces Acting on an Airfoil. (27 min) 1941. 16sd-$33.70. AAF-Castle. TF1-161.

Depicts the theory and principle of the forces acting on airfoils. Relative wing, lift, drag, angle of attack, and the airfoil itself are defined and their relationship illustrated. This film should be used as a component reel and be shown previous to *Aerodynamics: Air Flow.*

Aerodynamics: Theory of Flight. (11 min) 16sd-$50. EBFilms.

A wind tunnel demonstration of air velocity showing lift and drag on plain and cambered airfoils. Also the control of airplane movement by use of ailerons, elevator and rudder.

Aerology: Ice Formation on Aircraft. (48 min) 16sd-$56.14. Navy-Castle. MN119a.

How ice forms on an aircraft and the effect it has on the flyability of the plane.

Age of Flight. (20 min) 16sd. RKO-Pict Films.

Progress of aviation from Kitty Hawk to mass production of today.

Air. (15 min) 16si-rental plus transportation. EditPS.

Measuring of velocity of wind; air pressure principles, principles of compression as applied to airplane and parachute, lighter-than-air ships, submarines.

Airplanes & How They Fly. (11 min) Rental: U. of Ill.

• Major types of modern aircraft; how airplane is pulled through air, how airflow lifts plane, and how flight is controlled by rudder, elevator and aileron.

Atmosphere and Its Circulation. (11 min) 16sd. EBFilms.

First is presented the nature of air, structure, chemical composition, weight and distribution. Second, the circulation in relation to the earth; that circulation forms pressure bands and is affected by rotation which causes movement or winds. The structure and dynamics of atmosphere are explained by animated drawings.

Atmospheric Pressure. (15 min) 1928. 16si-$24. EBFilms.

Illustrations of unbalanced air pressure including Magdeburg hemisphere demonstrations. Variations in atmospheric pressure between valley and hilltop and between land and water.

Aviation Series. (Bray) (4 subjects, 7 reels) 16sd. Purchase or rental: Bray.

• Four subjects. Titles, descriptions and running time of each film:

1. Youth Trains for Aviation. (10) How air-minded youths are taught new types of planes.

2. Methods of Flight. (20) Demonstrated by flapping wing flight of birds, flapping wings and flying ornithopter, soaring and gliding, lighter-than-air balloons and rotating wing flight.

3. Essential Parts and Types of Planes. (10) Explaining control and stability and discussing types of fliers and showing flight of models of weight carriers.

4. Aerodynamics: Part I. Properties of Air. (7½) Demonstrating air mass support of objects and weight of air; Part II. Lift. (7½) Bernoulli's principle and application, and comparison of kite and airplane flight; Part III. Air Resistance and Streamlining. (7½) Resistance of air to moving objects and visible air flow.

Conquest of the Air. (40 min) 16sd. Films.

Every significant development in aviation from Leonardo daVinci's sketches to modern clippers.

How an Airplane Flies Series. 16sd. Free loan: Shell.

• Theory of flight, broken down into six major components, in six motion pictures. Titles are:

1. Lift. (12 min) How changes of air pressure on upper and lower surfaces of wing create upward force which keeps plane in air.

2. Drag. (14 min) Air resistance to forward movement; how streamlining and small frontal area minimize "parasite drag" and long, narrow wing cuts down "induction drag."

3. Thrust. (6 min) Principle of reaction and forward motion. The film is mounted on the same reel with (4) Forces in Balance (8 min) Relationships among the forces of lift, drag, thrust and weight acting on plane in flight.

5. Stability. (10 min) How all-around stability can be effected. Mounted on same reel with (6) Controls (9 min) How controls can modify straight and level flying; how plane is pitched up or down by applying elevators; rolling and banking, with ailerons; efficient turning by using rudder in combination with other controls.

Report on Jet Propulsion. (25 min.) 16 sd-color. Bell Aircraft.

The jet theory is studied through the various stages of its development. Featuring America's initial jet-propelled plane, the P-59 Airacomet, the film shows the ways in which a jet engine generates its tremendous energy.

Smoke Streams. (30 min) 16si-$90; rent-$4. Franklin Institute-Bray.

A visualized study of aerodynamics and airflow phenomena. Shows: lift, drag, high lift devices, downwash effects, tip losses, and miscellaneous flow phenomena.

Youth Takes to Wings. (50 min) 16sd. Purchase, rent: Bray.

Demonstrates flight theory, development, and engine principles.

SLIDE FILMS

Aerodynamics. AAF-Castle. FS1-8.

Describes the motion of air and the force it exerts upon moving solids; explains the way in which turbulence and skin friction oppose useful dynamic reaction.

Effect of Controls. AAF-Castle. FS1-98.

A filmstrip for use with elementary aviation pilots and instructors describing function of basic controls and what happens when each is used. Explains coordination of controls and stresses the elimination of "manhandling" controls.

Plane Performance. (63 frames) 1942. CAA.

Photography, drawings, and graphs are used to illustrate the factors which govern plane performance.

Theory of Flight Series. (Series of 4 films). Purchase: SVE.

• Subjects in the Theory of Flight Series include: Part I: The Atmosphere and the Airfoil; Part II: The Complete Airplane; Part III: Control of the Plane; and Part IV: Stability and Performance.

AIRCRAFT ENGINEERING

(See also Engineering, P. 28)

MOTION PICTURES

Airplane Structures: Static Test. (12 min) 1942. 16sd-$16.76. AAF-Castle. TF1-312.

Shows laboratory methods used to test various component parts and control columns of aircraft submitted for checking against original specifications and design.

Airplane Structures: Structural Units, Materials and Loads for Which Designed. (8 min) 1941. 16sd-$10.51. AAF-Castle TF1-211.

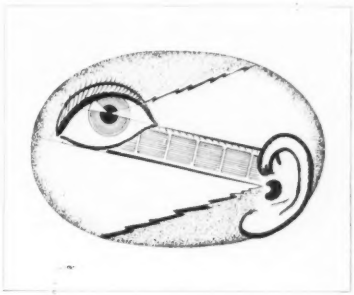
Describes the four structural units of the airplane: fuselage, wings, control surfaces and landing gear. Discusses the positive and negative loads which each must withstand.

Making a Master Developed Layout: Part I. (20 min) 16sd-$32.16. USOE-Castle. OE126.

Shows how to make the complete pattern or master developed layout (except layout of form block line) for a bulkhead in an airplane fin, using a master contour template; how to provide bend relief; how to calculate setback values; how to use dividers to scribe lines and transfer measurements.

Making a Master Developed Layout: Part II and Making a Form Block. (16 min) 16sd-$27.88. USOE-Castle. OE127.

Shows how to complete a master developed layout by calculating and scribing the form block lines. Shows how to use the form block template to scribe contours and to locate beam lines, lightening hole, and pinholes on form block stock; how to saw, sand, and finish the form block to correct dimensions; how to check bevel angles and bend radius; and how to drill pin holes, and drill and countersink lightening hole.



SLIDE FILMS

Preserve the Original Strength. Navy-Castle. SN294.

Stresses the fact that an airplane is as safe as the strength of its weakest point, explains tension, compression, shear, bending and torsion, explains the monocoque and semi-monocoque types of fuselages and the "stressed" skin type of wing structure.

Pressure Gages. AAF-Castle. FS1-52.

Application of pressure gages on aircraft. Illustrates Bourdon mechanism, diaphragm mechanism, and aneroid mechanism.

AIRCRAFT POWER PLANT

(See also Engines, P. 31)

Principles

MOTION PICTURES

Power House of Aviation. (45 min) 16sd. Free loan: Wright.

• How large aircraft engines are manufactured at Wright plant.

SLIDE FILMS

Classification of Engine Types. AAF-Castle. FS1-9.

Depicts the methods of classifying aircraft engines as to type: in-line, V-type, double V-type, X-type opposed, radial; and according to cubic inch displacement.

Assembly & Disassembly

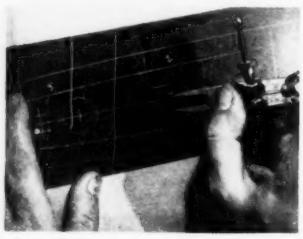
MOTION PICTURES

Aviation Engine Disassembly & Inspection. (30 min) 16sd-si. Purchase or rental: Brandon.

Illustrates the major parts of a modern radial engine; the various sub-assemblies and their functions; methods of inspecting for flaws, testing and running in.

Disassembling the Engine. (13 min) 16sd-$23.60. USOE-Castle. OE268.

Shows how to remove the oil sump, valve tappet, and gear case cover assemblies; how to separate crankcase and remove crankshaft assembly and camshaft; and how to disassemble crankshaft and gearcase cover assemblies.



Making a Master Developed Layout, Part I

Engine Change: Installation. (17 min) 16sd-$28.58. USOE-Castle. OE273.

Shows the safety precautions to be observed when installing an engine; how to inspect engine mount, controls, and firewall; how to connect controls and attachments; how to ground test the engine; and how to prepare for check flight.

Engine Change: Removal. (17 min) 16sd-$28.58. USOE-Castle. OE272.

Shows the safety precautions to be observed when removing an engine; how to disconnect controls and attachments; how to remove the engine; how to inspect the mount, firewall and controls.

Reassembling the Engine. (22 min) 16sd-$34.31. USOE-Castle. OE271.

Shows how to reassemble the crankshaft and camshaft assemblies, crankcase section, and gear case cover assembly; how to reinstall the oil sump; and how to complete reassembly of the engine.

Removing and Inspecting Cylinders. (18 min) 16sd-$30.01. USOE-Castle. OE262.

Shows how to prepare for overhaul; how to remove the cylinder assemblies from the engine; how to disassemble the cylinder assemblies; how to clean, inspect, and recondition the cylinders; and how to measure clearances.

The Turbosupercharger, Master of the Skies. (25 min) 16sd. Washington office of CAA.

Shows installation and maintenance of the turbosupercharger; shows planes using this equipment; flight operation. Presents a general explanation of the turbosupercharger, emphasizing importance of correct maintenance and service.

SLIDE FILMS

Connecting Rods, Crankshafts, Bearings, & Crankcases. AAF-Castle. FS1-35.

Describes purpose, essential parts, and means of disassembling and assembling connecting rods, crankshafts, bearings and crankcases.

The Turbosupercharger—Assembly: Part IV. (79 frames) Washington office of CAA.

Describes step-by-step procedure for assembly of a Type B turbosupercharger.

The Turbosupercharger—Disassembly: Part I. (84 frames) Washington Office of CAA.

Shows step-by-step disassembly operations for a Type B turbosupercharger.

The Turbosupercharger—Installation: Part II. (55 frames) Washington office of CAA.

Shows the steps to be taken in installing a turbosupercharger in a B-29 plane after overhaul at an air depot.

The Turbosupercharger—Removal: Part I. (39 frames) Washington office of CAA.

Describes the procedure for taking a turbosupercharger out of a B-29 for overhaul at an air depot.

Electrical System

MOTION PICTURES

Aircraft Engines: Elements of Electricity as Applied to Ignition Systems. (28 min) 16sd-$34.43. AAF-Castle. TF1-136.

Portrays elementary phenomena in electricity and magnetism and the application of these principles to the engine's ignition system.

Servicing & Timing Magnetos. (16 min) 16sd-$27.88. USOE-Castle. OE266.

Shows how to remove magnetos from the engine, and install and adjust new points; explains the importance of ignition timing; and shows how to reinstall and time the magnetos.

Servicing Spark Plugs & Ignition Wiring. (22 min) 16sd-$34.31. USOE-Castle. OE265.

Shows how to remove the spark plugs and ignition wires; how to clean, inspect, and adjust spark plugs; how to prepare new ignition wires for installation; and how to reinstall the spark plugs and ignition wires.

Spark Plugs in Aviation. (30 min) 1941. 16sd-rent-$3. B. G. Corporation—Bray.

This film describes by animation and narration the practices and procedures for the servicing of aviation spark plugs, and also includes a description of the theory and operation of the Ignition Harness Test Set, which is used in the field to determine the condition of ignition wires, terminal sleeves, etc.

Trouble Shooting Problems—Ignition. (19 min) 16sd-$30.74. USOE-Castle. OE275.

Shows how to find what system of the engine is causing trouble; how to locate trouble within the ignition system when an engine fails to start, when it runs rough, and when it fails to develop full power; how to repair and check engine operation after trouble shooting.

SLIDE FILMS

Aircraft Storage Batteries. AAF-Castle. FS1-17.

Describes types of batteries used on airplanes, and their operating principles. Explains function of container, plates, separators, electrolyte, vents and terminals. Describes methods of charging and testing.

Generator & Regulator Systems: Principles. AAF-Castle. FS1-53.

Explains the principles, operation, and construction of the generator and gives details of the various inspections required on generator and regulator systems: daily, 25, 50, 100-hour, and special inspections.

Fuel System

MOTION PICTURES

Aircraft Engines: Carburetion. (37 min) 16sd-$44.69. AAF-Castle. TF1-137.

Shows, by means of animated drawings, various types of carburetors and the principles of operation with airplane engines.

Jet Propulsion. (15 min) 16sd-color. Free loan: GE.

• Fundamental information on principle of jet propulsion and basic operation of jet engine.

Overhauling the Carburetor. (23 min) 16sd-$35.16. USOE-Castle. OE267.

Shows how to remove the carburetor assembly from the engine; how to disassemble, clean and inspect, and reassemble the carburetor; how to check the fuel level; and how to reinstall the carburetor assembly.

Trouble Shooting Problems—Fuel Induction. (16 min) 16sd-$28.58. USOE-Castle. OE276.

Shows how to find what system of the engine is causing trouble and how to locate the trouble within the system; how to trouble shoot in the

fuel system for failure to develop full power, for rough running at idling speed, and for overheating; and how to check engine operation after trouble shooting.

S L I D E F I L M S

Aircraft Engine Pumps. AAF-Castle. FS1-60.

The operations, construction and maintenance of the coolant, oil and fuel pumps, and various types of vacuum pumps are shown. Explains the relief valve.

Exhaust & Intake Manifolds: Ranger. Navy-Castle. SN1323.

Shows how to remove, inspect and install exhaust and intake manifolds on the Ranger engine.

Exhaust & Intake Manifolds: Whirlwind. Navy-Castle. SN1324.

Shows how to remove, inspect, and install exhaust and intake manifolds on the Whirlwind engine.

Fuel & Oil Tank Repairs. Navy-Castle. SN2659.

Shows the tools needed for the job, and the proper method used in making fuel and oil tank repairs. Stresses the precautions to take when doing this type of work.

Fuel Level Gages. AAF-Castle. FS1-58.

Illustrates mechanical and electrical gages, their operating principles, methods of inspection and maintenance.

Inspecting the External Fuel System: Part I. Navy-Castle. SN187a.

Demonstrates the procedures recommended for cleaning and inspecting the entire external fuel system of the airplane.

Intake & Exhaust Systems. AAF-Castle. FS1-64.

Diagrams the essential elements of a simple intake and exhaust system; intake and exhaust systems for radial and V-type aircraft engines. Gives simplified explanation of the supercharger. Outlines maintenance and inspection procedures for intake and exhaust systems.

Inspection & Maintenance

M O T I O N P I C T U R E S

Cooling System & The Fuel System, The. (22 min) 16sd-$33.60. USOE-Castle. OE464.

Checking for leaks in cooling system; checking fan and water pump; checking mechanical operation of carburetor; cleaning filters and vents; checking fuel pump; checking for leakage in fuel system.

Field Inspection & Service of the Wright Cyclone 14. (80 min) Wright.

Instructional film for pilots and ground crews on the operation, servicing and maintenance of Wright cyclone engines.

Field Inspection & Service of the Wright Cyclone 18BA Engine. (80 min) Wright.

Instructional film for pilots and ground crews on operation, servicing and maintenance of Wright cyclone engines.

Inspecting & Reconditioning Piston Assembly. (22 min) 16sd-$34.31. USOE-Castle. OE263.

Shows how to clean, inspect, and recondition the piston assembly; how to measure clearances; and how to install new piston rings.

Inspecting & Reconditioning Valve Assembly. (25 min) 16sd-$37.32. USOE-Castle. OE264.

Shows how to disassemble the valve mechanism and clean and recondition the parts; how to measure clearances; how to reassemble the valve mechanism; and how to re-install the pistons and cylinders.

Overhauling Camshaft Assembly & Crankcase Section. (19 min) 16sd-$30.74. USOE-Castle. OE270.

Shows how to inspect the cam-shaft and gear case cover assembly parts; how to inspect and recondition the crankcase section; how to measure crankcase bearings; and how to inspect and recondition the remaining parts.

Overhauling Crankshaft Assembly. (19 min) 16sd-$30.74. USOE-Castle. OE269.

Shows how to clean the parts of a disassembled engine; how to inspect and recondition crankshaft assembly parts; how to determine clearances and check for out-of-round; and how to check the clearances against specifications.

Servicing the Sodium-Cooled Aircraft Valve. (20 min) 16sd. Eaton.

Contains technical animation as well as direct photography of service operation.

S L I D E F I L M S

Aircraft Engine Troubles: General. AAF-Castle. FS1-66.

Describes common engine troubles in the compression and ignition systems; causes of improper compression; ignition troubles caused by defective spark plugs.

Cylinder & Piston Assemblies. AAF-Castle. FS1-27.

Technical details of cylinder and piston. Illustrates inspection of cylinder and piston defects, and use of thickness gage and micrometer.

The Turbosupercharger—Details of Repair: Part II. (79 frames) Washington office of CAA.

Explains the service and repair of a turbosupercharger. Describes the procedure to be followed for repairing equipment which is removed from a plane.

The Turbosupercharger — Inspection and Maintenance: Part I (37 frames) Washington office of CAA.

Depicts the daily and preflight inspection of turbosuperchargers in B-29 planes.

The Turbosupercharger — Inspection and Maintenance: Part V. (57 frames) Washington office of CAA.

Operations for preventive maintenance on Type B turbosuperchargers are illustrated. Shows procedure followed on equipment that is in a plane.

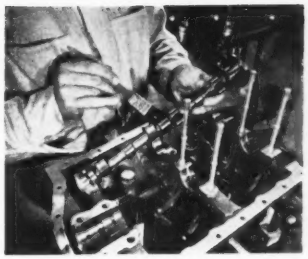
The Turbosupercharger — Rotor Balance: Part III. (68 frames) Washington office of CAA.

Shows how rotor balance is obtained and checked. It is necessary to know how to balance the turbosupercharger rotor because of the high rotating speed it reaches.

Return All Films Promptly

◆ Both "free loan" and rental films listed in this INDEX are being widely used by business and industry. *Prompt return of prints immediately after use* makes it possible for more companies and departments to use these valued training aids.

Parcel post special delivery for return of borrowed or rented subjects will expedite their handling.



Reassembling the Engine

Lubrication

M O T I O N P I C T U R E S

Trouble Shooting Problems—Mechanical & Lubrication. (10 min) 16sd-$20.74. USOE-Castle. OE274.

Shows how to find what part of the engine is causing trouble and the importance of checking obvious symptoms when trouble shooting; how to locate and correct causes of mechanical and lubrication trouble when the engine runs rough, and when there are low oil pressure and high oil temperature; and the importance of checking engine operation after trouble shooting.

Operation

M O T I O N P I C T U R E S

Power and Octane. (33 min) 1942. 16sd-loan only. Esso.

Describes what 100 octane gasoline is, and what it does for aircraft engines. Instructions for pilots on how to control its use in order to realize the full power of the fuel without harming the engine.

Pre-Flight Training Series. (Six subjects, 10 min each). 16sd. Purchase or rental: Bray.

● Scripts by Arthur S. Otis, co-author, Pope-Otis textbook, "Elements of Aeronautics." Titles and descriptions:

1. Aircraft and How They Fly. Illustrates classes of aircraft, parts, lift, flying speed and stalling.
2. Motions of a Plane. Explaining three fundamentals of motion—yawing, pitching and rolling.
3. Flying the Turn. Banking to prevent slipping or skidding, necessary sequence of control movements, and how centripedal force is obtained.
4. Starting—Taxiing—Taking Off. Illustrating landing gear, brakes, tail wheel, throttle, tachometer, wind sock; starting engine; difficulties of taxiing; steps in taking off; use of tab.
5. Landing. Explaining approach, glide, leveling off, skimming, landing up wind, sideslipping to lose altitude.

S L I D E F I L M S

Aircraft Engine Operation. AAF-Castle. FS1-72.

Gives procedures for starting up, warming up, ground testing, and stopping aircraft engines.

Aircraft Engine Troubles: Starting. AAF-Castle. FS1-82.

Aircraft engine starting difficulties are discussed under the heading of cold weather, carburetion, compression, ignition and starter.

Cold Weather Starting. Navy-Castle. SN144.

Describes the effects of cold weather on oil, grease, fuel line and spark plugs, and outlines a definite procedure for starting an airplane engine in cold weather. The use of the electric immersion heater and the canvas engine warmer is explained.

Occupations in Aircraft Operation. 35si. Purchase: Vocational Guidance.

• An outline of vocational opportunities in the airplane field.

Power Plant Controls. (38 frames) 1943. CAA.

Describes the two foremost types of power plant control systems. Shows the advantages and uses of each type. Explains how to adjust the operation of these controls.

Preflight Aeronautics Series. (3 kits, 24 titles) 35si. Purchase: Jam Handy.

• Pictures, charts, drawings, cross-sectional views and diagrams to provide ground school instruction for training pilots and navigators; regulations of CAA. Titles in each kit and total pictures in each film:

Kit One: 1. Men and Wings (55); 2. Today's Wings (55); 3. Aircraft Regulation (37); 4. The Pilot (51); 5. Traffic (62); 6. Radio and Control (79).

Kit Two: 1. Lift and Drag (92); 2. Wing Forces (88); 3. Stability (67); 4. Plane Performance (112); 5. Check and Double Check (69); 6. The Airplane Engine (63); 7. Fuel and Feed (91); 8. Airplane Ignition (63); 9. Engine Instruments (44); 10. Parachutes (72).

Kit Three: 1. The Air Ocean (82); 2. Air Masses (75); 3. Weather (78); 4. Air Pilotage (116); 5. Dead Reckoning (78); 6. Airway Aids (77); 7. Flight Instruments (112); 8. Pilot Problems (24).

Tachometers & Synchronism Indicators. AAF-Castle. FS1-26.

Operating principles of aircraft tachometers, with inspection and maintenance procedures. Application of systems of synchronization with use of tachometers on multiple-engine installations.

Propellers

M O T I O N P I C T U R E S

Aircraft Propellers—Hamilton Hydromatic Propeller—Theory & Operation. (15 min) 16sd-$22.83. AAF-Castle. TF1-451.

A discussion of feathering and its advantages through the utilization of a variable pitch propellor. Models, diagrams, and actual views are combined to show the construction and mechanism of a variable pitch propeller. A discussion of constant speed operation. Ground checking and feathering in actual flight and in landing.

Airplane Propellers: Principles and Types. (17 min) 16sd-$23.54. AAF-Castle. TF1-246.

Explains reasons for varying sizes and number of blades on different aircraft, why a propeller is twisted and why its angle is changed. Functions of fixed pitch, two-position, Hamilton Constant Speed, Hamilton Hydromatic, Curtiss Electric, and Aero Products propellers are shown.

Airscrew, The. (22 min) 16sd. BIS.

An account of the manufacture of all-metal propellers, from the raw materials to the finished product. Includes explanation of the variable pitch theory.

Keep 'Em Flying. (30 min) 16sd. Hamilton Standard Propellers—Jam Handy.

The hydromatic propeller: models, diagrams, actual views of construction, and basic principles. Inspection and ground testing.

Servicing a Propeller. (18 min) 16sd-$30.01. USOE-Castle. OE277.

Shows how to inspect and remove a propeller; how to repair damage to the metal edges; how to check the track and correct for out-of-track; how to check horizontal and vertical balance and correct for out-of-balance; and how to reinstall the propeller.

Working on Air. (18 min) 16sd. GM.

Development of a simpler and lighter constant speed propeller, production and use in combat.

S L I D E F I L M S

Curtiss Electric Propeller Disassembly. Part I & II. (70 and 50 frames) Si. Loan: CAA.

• Part I deals with the power unit; Part II, with the hub and blades.

General Principles of the Propeller. AAF-Castle. FS1-104.

Describes function and operation of the aircraft propeller. Explains thrust, pitch, angle, slip feathering, and wind-milling. Traces development of modern propeller.

Ground Adjustable Propellers. (55 frames) Si. Loan: CAA.

• Operation, installation, inspection, etc.

AIRCRAFT PRODUCTION

(See also Foundry & Forging, P. 34; Machine Shop, P. 40; Materials & Metals, P. 50; & Sheet Metal Shop, P. 69)

Aircraft Alighting Gear

(See also Aircraft Maintenance, P. 13)

M O T I O N P I C T U R E S

Airplane Hydraulic Brakes: Principles of Operation. (20 min) 16sd-$26.41. AAF-Castle. TF1-162.

Explains the need for brakes on modern airplanes and the basic principles of the brake itself. Covers both independent and integral systems in detail, including their operation in the airplane.

Airplane Hydraulic Brakes: Types, Construction and Action. (30 min) 16sd-$37.26. AAF-Castle. TF1-305.

Displays the parts of the Bendix single servo and duo servo brakes, the Hayes single show, single servo and duo servo brakes, the Hayes single expander tube brakes, the Hayes double expander tube brakes and the Goodyear disc type brakes.

Overhauling the Carburetor

Airplane Structures: Alighting Gear. (10 min) 16sd-$13.18. AAF-Castle. TF1-215.

Defines alighting gear; shows loads exerted; and explains principles of operation, component parts, and devices that warn pilots of alighting gear's position.

S L I D E F I L M S

Adjusting Mechanical Brakes. Navy-Castle. SN1995

Describes preliminary checking of the brake system, adjusting the brake and the final adjustments of the brake hook-up.

Aircraft Assembling, Riveting and Welding

(See also Welding, P. 72)

M O T I O N P I C T U R E S

Assembling in a Jig (Drilling and Riveting). (21 min) 16sd-$32.87. USOE-Castle. OE137.

Shows the procedure for drilling, burring, dimpling, riveting an aircraft sheet metal assembly, emphasizing (1) following a pattern in drilling, (2) fastening parts securely before riveting, (3) riveting procedures for long and short seams.

Assembling in a Jig (Fitting and Lining Up). (16 min) 16sd-$27.88. USOE-Castle. OE136.

Shows how aircraft sheet metal parts are assembled in a precision assembly jig, how aircraft sheet metal parts are fitted together and accurately lined up; how to use an awl for lining up; how to use skin fasteners; how to correct misaligned holes.

Blind Riveting. (15 min) 16sd-$27.15. USOE-Castle. OE294.

Explains necessity for blind riveting. Shows how to rivet parts that have partial accessibility; how to rivet parts that are completely blind; how to determine when rivet heads are properly set; how to use the special tools and rivets in blind riveting jobs.

Bomber. (10 min) 16sd—$14.09. Castle.

The manufacture, speed, and power of the B-26 Army bomber are portrayed. Commentary specially written by Carl Sandburg.

Dimpling and Countersinking. (21 min) 16sd-$32.87. USOE-Castle. OE139.

Shows how dimpling and countersinking pre-

pare metal for flush riveting; how to set up and adjust a dimpling machine; how to operate a dimpling machine; how to select and adjust a stop counter-sink; how to countersink work for flush rivets.

Drilling With Portable Drill Motors. (17 min) 16sd-$29.29. USOE-Castle. OE138.

Shows how to use a portable electric drill motor; how to select a drill and check it for size; how to insert a drill in chuck; how to check a drill for true running; how to avoid damage to parts while drilling; how to install and use a special attachment for drilling.

Driving and Bucking Rivets. (18 min) 16sd-$30.01. USOE-Castle. OE140.

Shows how to set up and adjust a rivet gun; how to drive rivets under average conditions; how to buck rivets under average conditions; how a riveter and a bucker work together as a team; how to drive and buck rivets in hard-to-get-at places.

How To Braze Aluminum. (7 min) 16sd. Aluminum Co.

The important new process of joining thin aluminum sections by means of torch, dip, and furnace brazing is shown and explained.

How to Rivet Aluminum. (27 min) 1942. 16sd. Aluminum in cooperation with USBM.

Shows assembly and fabrication of aluminum structures; preparing rivet holes, heating the rivets, riveting procedure.

Introduction to Airplane Riveting. (19 min) 1942. 16sd-$66. Jam Handy.

Riveting in manufacture and maintenance of airplanes; types of rivets, storage, and heat treatment; spacing of rivets, laying out the work and drilling rivet holes; riveting operations.

Messerschmitt 110 E. (30 min) 16si-color. Consolidated Vultee.

Presents the assembly and disassembly of the German ME 110 presented to Vultee by the British Air Ministry. Made primarily to be shown to engineers and others interested in German construction methods.

Removing Defective Rivets. (15 min) 16sd-$26.43. USOE-Castle. OE141.

Shows how an inspector marks defective rivets; how to center a drill in a rivet head; how to drill the heads of flush-type and brazier head rivets; how to draw a drill back on center; how to remove the shank and head after drilling.

Spot Welding. (19 min) 16sd-$32.16. USOE-Castle. OE295.

Explains the machine, the making and testing of setups, making the spotweld, and cleaning the electrode tips.

Squeeze Riveting—Stationary and Portable Riveters. (14 min) 1945. 16sd-$26.43. USOE-Castle. OE293.

Shows the advantages of riveting by machine; the selection of correct rivet sets for stationary and portable squeezers; the setup and use of the stationary and portable squeezers.

S L I D E F I L M S

Aircraft Tachometers. (65 frames) Si. Loan: CAA.

• Mechanics, maintenance and installation of the four main types of tachometers.

Aircraft Controls

(See also Aircraft Maintenance, P. 13)

M O T I O N P I C T U R E S

Attitude Gyro, The. (15 min) 16sd. Sperry.

In all types of planes, the attitude gyro provides pilot with visual indication of his position in any maneuver.

The Compass System. (16 min) 16sd—$22.13. Navy-Castle. MN 1792e

Explains and demonstrates the five major assemblies of a Sperry Mark 14 Gyro Compass.

The Gyroscope and the Earth's Rotation. (10 min) 16sd—$13.18. Navy-Castle. MN 1792b

Explains how a simple gyroscope becomes a gyro compass; demonstrates the principles of rigidity and recession and apparent rotation and gravity.

The Gyroscope and Gravitation. (15 min) 16sd—$20.68. Navy-Castle. MN 1792c

Explains the theory and operation of the pendulous and mercury ballistic type compass, and studies the effect of gravity upon the gyroscope.

Gyro Compass. (8 min) 1943. 16sd-loan. Sperry.

This is the first gyroscopic instrument to be made by Elmer Sperry. Its importance to the comfort and safety of transportation and to the war effort are depicted. The repeater compass, gyropilot and course recorder are also shown.

Gyrosyn Compass, The. (27 min) Sperry.

A flight and navigation instrument providing a stable turbulence; instrument in action.

Introduction to Radar. (26 min) 1944. 16sd. CAA.

Studies the basic theory of radar. Explains nomenclature, operation, and types. Briefly describes the P.P.I. Sets up and solves a problem by radar in the closing sequences.

Instrument Flight Control—Orientation: The True Fade System. (8 min) 16sd. CAA.

Shows how various features will affect the true fade method of radio range orientation: square sector, closed sector, open sector, wind, terrain, and distance. Explains when and where the true fade method is most practical.

Loran—Airborne Operations. (22 min) 16sd. CAA.

Illustrates procedures for installation, alignment, and operation of Loran gear. Examines peculiarities of Loran signal patterns under actual operation.

Loran—Basic Principles of Loran Operation. (12 min) 16sd. CAA.

Studies the fundamentals of Loran operation. Examines the relation of Loran master and slave stations. Describes radio activity in the ionosphere and the qualities of sky and ground waves.

Making a Five-Tuck Splice. (26 min) 16sd-$38.02. USOE-Castle. OE143.

Shows how to solder a cable and to prevent unlaying while splicing; how to use a splicing clamp and a marlin spike; how to make first tuck and four succeeeding tucks; how to taper the splice; and how to set, serve, and shellac the splice.

Making a Wrapped and Soldered Splice. (15 min) 16sd-$27.15. USOE-Castle. OE144.

Shows how to make a ball soldered terminal; how to prevent the wires from unlaying when cut; how to fit a cable to a thimble; how to use a splicing clamp; how to make the wire wrap; how to provide for inspection spacing; how to get the solder thoroughly sweated into the space between wrapping and thimble.

Micro Switches on Aircraft. (30 min) 1944. 16sd-color. Micro.

The use of "Micro" precision switches on commercial and military aircraft.

Orientation: Fade Parallel System and Close-in Procedure. (8 min) 16sd—$11.39. Navy-Castle. MN 1059ab

Orientation: The 90 Degree Method. (10 min) 16sd—$14.09. Navy-Castle. MN 1059z

Principles of the Gyroscope. (10 min) 16sd—$14.09. Navy-Castle. MN 1792a

Explains and illustrates the basic principle of the gyroscope; points out the three degrees of freedom of a gyroscope.

Problems of Flight. (1 rl) 16 sd. EBFilms.

Studies the use of plane's controls in taking off, climbing, banking, stalling, spinning and recovery, diving, gliding, and landing.

Radio Navigation: Bracketing an Unknown Beam. (10 min) 16sd—$13.18. Navy-Castle. MN 1059y

Romance of the Gyroscope. (10 min) 1943. 16sd-loan. Sperry.

The principles of the gyroscope are explained and its developments in the past forty years are shown. The scientist Foucault is seen in his discovery of the gyroscope.

Swaging Cable Terminals. (12 min) 16sd-$22.15. USOE-Castle. OE298.

Shows how to select the dies to fit the cable; how to measure and mark the cable accurately; how to anchor the cable in the terminal; how to set up the swaging machine; how to check work for uniformity and other defects; and how to remove and to clean machine parts.

S L I D E F I L M S

Altitude. sd—$4.72. Navy-Castle. SN 1059d

Analysis of Maneuvers: Part I. sd—$4.72. Navy-Castle. SN 1059e

Analysis of Maneuvers Using Instruments. sd—$4.72. Navy-Castle. SN 1059w

Approach Control. sd—color—$9.10. Castle. CA 3

Explains the purpose and operation of approach.

Overhauling Crankshaft Assembly

Control. Follows step-by-step the procedures and phraseology in landing a plane.

Cockpit Instrument Checks. sd—$4.72. Navy-Castle. SN 1059u

Diaphragm Instruments. (59 frames) 1943. sd. CAA.

Discusses speed and altitude control instruments: airspeed meter, vertical speed indicator, sensitive altimeter. Studies power control instruments: manifold pressure gage, tachometer.

Flight Control System. Navy-Castle. SN1997.

Using a stick and rudder pedals, demonstrates a simple wire control system and explains torque tube systems, combinations of torque tubes and wires, push-pull tubes, and methods of wheel control in aircraft construction.

Gyroscopic Instruments. sd—$4.72. Navy-Castle. SN 1059b

Instrument Flight Rules. sd—$4.72. Navy-Castle. SN 1059ad

Magnetic Instruments. sd—$4.72. Navy-Castle. SN 1059c

Radio Altimeter Operation—Interpreting the Altimeter Indication. (48 frames) CAA.

Shows how to check radio altimeter model ARN-1 for normal operation. Depicts interpretation of its indications in level flight, glide, bank, and at altitudes above 400 feet.

Radio Altimeter Operation—Principles of Operation. (67 frames) 1944. CAA.

Shows how radio altimeter overcomes shortcomings of aneroid altimeter. Describes characteristics of radio altimeter's scale. Principal units of ARN-1 model are shown. Principles which enable radio altimeter to measure altitude are discussed.

Radio Navigation: Part V. sd—$4.72. Navy-Castle. SN 1059k

Radio Navigation: Part VI. sd—$4.72. Navy-Castle. SN 1059 l

Radio Navigation: The Radio Range. sd—$4.72. Navy-Castle. SN 1059x

A Typical Flight. sd—color—$9.10. Castle. CA 1

Shows the operations involved in controlling the flight of an airplane between Washington and New York during instrument flying conditions.

Weather Control During Instrument Flight: Part I. sd—$4.72. Navy-Castle. SN 1059s

Weather Control During Instrument Flight: Part II. sd—$4.72. Navy-Castle. SN 1059t

Servicing a Propeller

Aircraft Control Surfaces

(See also Aircraft Maintenance, P. 13)

MOTION PICTURES

Rib Stitching. (20 min) 16sd. Jam Handy.

How fabric is placed or stitched on airplane wings; how to use stitching needles; how to tie knots; how to splice stitching cords.

SLIDE FILMS

Airplane Flight Control Surfaces & the Wing Flaps. AAF-Castle. FS1-29.

Shows primary and secondary control surfaces: function of control surfaces. Construction, maintenance and inspection are also covered.

De-Icing Equipment. (38 frames) Si. Louis: CAA.

• Illustrates the units, how they work, and their functions.

Aircraft Sheet Metal Fabrication

(See also Sheet Metal Shop, P. 69)

MOTION PICTURES

Fabricating Metal Aircraft. (14 min) 16sd—$25.71. USOE-Castle. OE 288

Shows methods by which sheet metal may be cut and formed; methods by which sheet metal parts may be assembled; and mating major assemblies.

SLIDE FILMS

Form Blocks & Forming. Navy-Castle. SN1037.

Shows how metal is shaped by the use of forming blocks and how dies are used for flanging, making hollows and forming joggles.

Sand Bag Bumping. Navy-Castle. SN293.

Demonstrates a method of making metal parts for planes by using a sand bag as a working base. Shows the necessary equipment and outlines the procedure as: prepare the template, cut the metal, select the right tools, bump the metal properly, and finish the job smoothly. Shows how to make the sand bag.

Aircraft Structures

(See also Aircraft Maintenance, P. 13)

MOTION PICTURES

Airplane Structures: Fuselage Construction. (8 min) 16sd-$10.51. AAF-Castle. TF1-213.

Describes the fuselage and shows loads exerted upon component parts. Explains the principle of truss construction and attachment of wing; monocoque and semi-monocoque construction of fuselage; use of bulkheads and longitudinal stringers.

Airplane Structures: Wing Construction. (10 min) 16sd-$14.09. AAF-Castle. TF1-212.

Defines chord, spars and ribs, and their use in construction. Identifies materials used in construction, shows placement of fuel tanks in wings, and factory construction and assembly.

Structures. (45 min) 16sd. N. American Aviation.

Shows the B-25 in flight and discusses the principle of air pressure in relation to construction. Illustrates in detail the structure of the B-25 and the use of cantilever trusses and H beams.

Aircraft Wood Fabrication

MOTION PICTURES

Building a Box Beam Spar. (21 min) 16so-$32.87. USOE-Castle. OE297.

Shows how to assemble the parts of the spar in a jig; how to prepare the surfaces for glueing; how to apply aircraft glue; how to clamp parts together for a good glue bond; how to varnish surfaces for protection from moisture; how to use jigs for accurate drilling.

Building a Wooden Rib. (19 min) 16sd-$31.44. USOE-Castle. OE296.

Shows how to assemble, fit and glue wooden parts in a jig; how to prepare the frame work for plywood gussets; how to fit and position the gussets to the framework; how to apply aircraft glue; how to drive nails, and use clamps for a good glue bond; how to apply varnish.

Laying Out & Forming Plywood. (21 min) 16sd-$32.87. USOE-Castle. OE285

Shows how to lay out plywood using blueprints and templates; how to form plywood in a press; how to reinforce plywood; how to apply and remove pressure strips; how to cut out openings in plywood; and how to apply glue and varnish.

Wing Assembly: The Bow Tip. (24 min) 16sd-$35.89. USOE-Castle. OE284.

Shows how to fit the bow tip strip; how to mortise the bow tip strip to the leading edge strip; how to make the spar tip joint; how to install the ribs; how to shape the bow tip; how to apply and glue the bow tip skins; how to finish the bow tip; and how to varnish the surface.

Wing Assembly: The Inboard Panel. (19 min) 16sd-$30.74. USOE-Castle. OE300.

Shows how to install subassemblies in a jig: how to fit and install the junction rib, regular ribs, compression rib, and root rib; how to install and adjust hardware fittings; how to apply and glue the skins; how to reinforce skin openings; how to apply and remove pressure strips; how to finish the outside surface; and how to inspect the completed assembly.

Wing Assembly: The Nose Section. (20 min) 16sd-$32.16. USOE-Castle. OE299.

Shows how to position the main spar in the jig; how to establish the leading edge line; how to fit the ribs into position; how to install the webbed ribs, junction rib, regular ribs, and leading edge strip; how to apply and remove pressure strips; how to finish the surface of the nose section.

Aircraft Production—Miscellaneous

MOTION PICTURES

Airplanes. (35 min) 16sd. USBM.

Metals used in construction; progressive steps in building of cargo plane; importance of lubricants; theory of flight.

Airplanes—Their Metals, Fuels, & Lubricants. (37 min) 1944. 16sd. Sinclair in cooperation with USBM.

Metals used in construction of airplanes, operations of building and assembly. Cutaway engine assembled and described. Correct use of lubricants shown.

Construction of a Light Airplane. (28 min) 1942. 16sd.-$55; rent—$1 plus transportation. Penn State.

The building of the fuselage, landing gear, tail surfaces, and wings of a Piper "Cub" light plane.

How to Machine Aluminum. (32 min) 1942. 16sd. Aluminum.

Shows fabrication and assembly of aluminum parts and structures.

Only a Gasket. (35 min.) 16sd-color, Hathen.

Shows the engineering research and manufacturing techniques which are used in the manufacture of gaskets. Narrated by Lowell Thomas.

Tube Bending by Hand. (15 min) 16sd-$27.15. USOE-Castle. OE142.

Shows why tubes must be bent for installation in airplanes; how the jig and mock-up are used; how to measure tubes and check them with specifications; how to set up the tube bending machine for the job; how the various parts of the machine function.

S L I D E F I L M S

Aviation as a Career—Manufacturing. $2. SVE.

Metalsmiths' Tool Kit, The. Navy-Castle. SN926.

Shows the various tools used by the aviation metalsmith and what they are used for, including directions for keeping tools in good condition.

Occupations in Aircraft Manufacturing. $2.25. Voca Guidance-SVE.

Wing Auxiliary Fuel Cells. (138 frames) sd. Consolidated Vultee.

Shows the installation of wing auxiliary fuel cells, with the aid of cut away drawings and puppet figures.

AIRCRAFT INSPECTION

M O T I O N P I C T U R E S

Inspection of Minor Assemblies. (16 min) 16sd-$27.88. USOE-Castle. OE146.

Shows how to use inspection work sheets; how to plan inspection routine; how to inspect a minor assembly in detail; how to read rivet specifications; and how to inspect rivets.

Inspection of Plumbing & Piping. (17 min) 16sd-$28.58. USOE-Castle. OE147.

Shows how to use inspection work sheets; how to plan inspection routine; how to inspect plumbing and piping in detail; how to verify the materials used; how to inspect installation of the part in the plane; and how to identify different plumbing lines.

Inspection of Sheet Metal Parts. (20 min) 16sd-$32.16. USOE-Castle. OE145.

Shows how to use inspection work sheets; how to plan inspection routine; how to inspect a sheet metal part in detail; how to make visual inspection; and how to make spot checks.

Periodic Inspection—Airplane. (17 min) 16sd-$28.58. USOE-Castle. OE282.

Emphasizes the importance and meaning of thoroughness in performing a periodic inspection, showing a complete detailed inspection of an aileron as an example. Shows briefly the inspection of other parts of the airplane and emphasizes that all parts must be as thoroughly inspected as the aileron.

Periodic Inspection—Engine. (23 min) 16sd-$35.16. USOE-Castle. OE283.

Shows how to inspect the general condition of an engine; how to examine internal parts; how to check ignition and fuel system; how to examine the propeller; how to inspect for tightness, security, and proper safetying of all parts; how to prepare an engine for run-up.

Preflight Inspection—Airplane. (17 min) 16sd-$28.58. USOE-Castle. OE280.

Shows the necessity for careful and thorough inspection; how to use the "circle" method to give a complete and systematic inspection; and how each part—landing gear, wings, fuselage, tail surfaces, cabin, controls, instruments—is inspected.

Preflight Inspection—Engine. (13 min) 16sd-$23.60. USOE-Castle. OE281.

Shows the importance of continuous preventive maintenance in keeping an aircraft engine airworthy; the need for safe working habits during inspection; how to inspect the engine systematically—propeller blades and hub, cowling, controls, ignition system, and fuel system; how to conduct an engine run-up; and the inspector's responsibility in signing the preflight inspection form.

AIRCRAFT MAINTENANCE

(see also Aircraft Inspection)

Aircraft Alighting Gear

(see also Aircraft Production, P. 10)

M O T I O N P I C T U R E S

Inspecting & Adjusting Hydraulic Brakes. (13 min) 16sd-$23.60. USOE-Castle. OE255.

Shows how to inspect the hydraulic brake system; how to bleed hydraulic brakes; how to add fluid to the hydraulic system reservoir; how hydraulic brakes operate; and the importance of entering the job in the log book.

Installing Landing Gear. (19 min) 16sd-$31.44. USOE-Castle. OE257.

Shows how to remove damaged landing gear; replace old bolts, nuts, and cotters with new parts; install an aircraft bolt properly; assemble and install a new landing gear; and check alignment and track of wheels.

Repairing Aircraft Tires. (20 min) 16sd-$32.16. USOE-Castle. OE254.

Shows how to inspect an airplane tire; how to remove the tire; how to remove the tube from the tire; how to vulcanize the tube; how to repair a cut in the tire; how to reinstall the wheel; and the importance of entering the job in the log book.

Repairing & Relining Mechanical Brakes (21 min) 16sd-$32.87. USOE-Castle. OE256.

Shows how to check brake action; how to remove wheel and inspect brakes; how to disassemble wheel and remove brake lining; how to install new brake lining; how to replace brake cables; how to adjust brakes.

Blind Riveting

S L I D E F I L M S

Aircraft Tires—Part I: Maintenance & Repair. Navy-Castle. SN491a.

Shows the different types of tires, tubes and rims that make up a tire assembly; tools used in working with tires; precautions to be taken in working with tires to prevent failure and lengthen tire life; how to make minor repairs on tubes; and the importance of periodic inspection and proper inflation.

Landing Gear—B-24D. (120 frames) Consolidated Vultee.

Shows the assembly, removal, and retraction of the main and nose landing gear of the B-24D.

Aircraft Controls & Control Surfaces

(see also Aircraft Production)

M O T I O N P I C T U R E S

Attaching & Aligning Wings. (20 min) 16sd-$32.16. USOE-Castle. OE258.

Shows how to inspect a damaged wing; remove the damaged wing and attach a new wing; level the airplane and align the wing; complete the installation of the wing; and inspect the finished job.

Connecting & Adjusting Controls. (19 min) 16sd-$30.74. USOE-Castle. OE260.

Shows how to inspect and adjust the elevator and rudder control cables; how to line up and safety a turnbuckle; how to remove and replace a damaged aileron control cable and to adjust it for the proper aileron travel; and how to make a final check-up of control cables before entering the job in the log.

Installing & Aligning Tail Surfaces. (19 min) 16sd-$30.74. USOE-Castle. OE259.

Shows how to inspect damaged tail surfaces and remove them; how to prepare new parts for installation; how to install new stabilizers, elevators, and rudder; and how to inspect the job before entering it in logbook.

S L I D E F I L M S

Hand Tools for Fabric Work. Navy-Castle. SN102.

Deals with the tools needed by the airplane mechanic to make fabric repairs. Demonstrates how to sharpen a pocket knife, shows the straight shears, "pinking shears," the short straight

needle, and the curved needle. Explains their use and care.

Introduction to Airplane Instruments. AAF-Castle. FS1-23.

Principles of instrument operation, with discussion of electrical and mechanical types.

Rigging Changes After Flight. Navy-Castle. SN1999.

Shows how to make changes to correct faults revealed in the test flight. The faults covered are nose heaviness, tail heaviness, wing heaviness, yawing, and ground-looping.

Aircraft Structure

(see also Aircraft Production, P. 10)

MOTION PICTURES

Making Sheet Metal Repairs. (19 min) 16sd-$31.44. USOE-Castle. OE252.

Shows how to remove damaged area around a hole in an airplane fuselage and lay out trim lines; how to prepare hole to receive patch; how to "bump" out plug and doubler; how to mark and drill plug and doubler; how to rivet completed patch to part.

Patching Fabric. (22 min) 16sd-$33.60. USOE-Castle. OE250.

Shows how to cut out the damaged area; how to prepare the damaged area; how to prepare a patch; how to ribstitch a patch; how to finish a patch.

Patching Plywood. (26 min) 16sd-$38.02. USOE-Castle. OE249.

Shows how to prepare the damaged area; how to splay the edge of the hole; how to prepare and apply a splayed patch; how to make a flush or plug-type patch; how to make a frame or doubler; and how to apply a flush patch.

Repairing a Wooden Rib. (24 min) 16sd-$36.59. USOE-Castle. OE247.

Shows how to remove gussets, broken rib parts; how to splice a section of cap strip; how to cut, finish scarf joint; how to make a new truss member; and how to make, assemble gussets and reinforce cement plates.

Repairing Structural Tubing. (20 min) 16sd-$32.16. USOE-Castle. OE253.

Shows how to straighten a bent tube; how to round out a tube; how to remove a damaged section of tube; how to check and align a sprung fuselage; how to prepare a replacement of tube; how to prepare internal reinforcing sleeves; and how to assemble and weld the replacement section and sleeves.

Splicing a Wooden Spar. (21 min) 16sd-$32.87. USOE-Castle. OE248.

Shows how to determine the splice area and layout the splice; how to cut a scarf joint on a spar; how to finish a scarf face by hand; how to glue and assemble a scarf joint; how to make, glue, and assemble reinforcement plates; how to trim a spar to shape and size.

Aircraft Maintenance—Miscellaneous

MOTION PICTURES

Adjustments After Check Flight. (19 min) 16sd-$30.74. USOE-Castle. OE261.

Shows some causes of nose-heaviness, tail-heaviness, yawing, torque tendency, rough propeller and ground looping; how to determine particular cause of these troubles; how to make the necessary adjustments.

Airplane Mechanic, The. (9 min) 16sd-$19.28. USOE-Castle. OE278.

Planned as an orientation film for beginning airplane mechanics; shows and explains the skills and knowledge required to make satisfactory inspections and repairs; emphasizes the importance of thoroughness, skill, and dependability.

Maintenance of Plexiglass and Lucite. (37 min) 16sd—$44.69. Navy-Castle. MN 2218b

Demonstrates how to clean plexiglass and lucite, using soap and water and recommended cleaning fluids. Shows how to remove scratches and how to repair cracks.

Servicing an Airplane. (17 min) 16sd-$28.58. USOE-Castle. OE279.

Shows how to perform the various routine servicing operations on a light airplane, including proper and safe methods of pushing a plane on the ground, cleaning an airplane, refueling, changing oil, inflating tires, and starting engine.

Using a Portable Spray Gun. (26 min) 16sd—$38.75. USOE-Castle. OE 289

Shows how the pressure tank operates; how to clean portable spray guns; how to adjust paint, spray, and air controls; how to stroke while painting; and how to use the suction type spray gun.

SLIDE FILMS

Cockpits & Cabins—B-24D. (86 frames) Consolidated Vultee.

Ventilation system, furnishings, window removal and installation, nose wheel door removal and installation, armament.

Handling the Airplane. Navy-Castle. SN2796.

Emphasizes the dangers of careless handling of an airplane on the ground and recommends procedures to be followed, using a primary trainer for purposes of illustration.

Servicing Hydraulic Systems. Navy-Castle. SN2000.

Straight photography, charts, and cartoons are used to show the parts of the airplane operated by the hydraulic system. Emphasis is placed on servicing procedures.

Thermometer. AAF-Castle. FS1-51.

Describes the use, operation and maintenance of various types of aircraft thermometers.

AVIATION—MISCELLANEOUS

MOTION PICTURES

Air Fleet, The. (12 min) 16si. Free loan: Goodyear.

• Non-rigid airships in action, including maneuvers.

Air Traffic Control. 16mm. B & W. Apply: Bray.

• Information on one of most important factors in airplane operation.

Air Transportation. (1 rl) 16sd. Voca Guidance.

Covers various jobs in field of air transportation, including pilot, meteorologist, flight superintendent, mechanic, traffic coordinator, navigator, hostess, and clerical workers.

Building a Box Beam Spar

Airships. (10 min) 16sd. Free loan: Goodyear.

• Tells of airship construction and shows lighter-than-air craft in flight.

Balloons. (10 min) 16sd. Free loan: Goodyear.

• Various types of balloons, including racing varieties and those for wartime purposes.

Ceiling Unlimited. (28 min). 16sd. Free loan: Socony-Vacuum.

• Advantages of flying and encouragement of construction of new airports.

Oxygen Equipment. (80 frames) Si. Loan: CAA.

• Explains the parts and their operation, installation and maintenance.

Packing and Maintenance of Parachutes. 16sd. Free loan: Bray.

• Up-to-date instruction in vital measures for all airmen.

Parachutes for Safety. (52 min) 1942. 16sd-rent-$4. Bray.

The various uses of parachutes, how they are made, and tested for use; correct method of packing a chute; how to properly service and operate a parachute.

Story of the Airship. (12 min) 16si. Free loan: Goodyear.

• Beginning of American balloon-making and flying, development of blimps, and construction of huge rigid airships.

SLIDE FILMS

Aircraft Engine Mechanics. (One kit—24 films) si. Purchase: Jam Handy.

• Comprehensive point-by-point description of the modern aircraft engine, its principles, its functions, its operations. Titles and total pictures in each film:

1. The Airplane Engine (62); 2. Airplane Ignition (75); 3. Engine Control Systems (46); 4. Flight Instruments (126); 5. Engine Instruments (57); 6. Refueling the Airplane (57); 7. Types of Fuel Systems (76); 8. Inspecting the External Fuel System (44); 9. Oil Systems (69); 10. Checking Valve Clearance (47); 11. Adjusting Valves (31); 12. Valve Operating Mechanism (78); 13. Push Rod Assembly (51); 14. Power Plant Lubrication (36); 15. Maintenance of Storage Batteries (55); 16. Servicing the Oil System (42); 17. Cleaning the Power Plant (42); 18. Magneto Ignition Maintenance (43); 19. Fuel and Feed (87); 20. Methods of Starting (43); 21. Gaskets (39); 22. Propeller Maintenance (54); 23. Cold Weather Starting (49); 24. Servicing Hydraulic Systems (49).

Aircraft Mechanics. (One kit—47 films). si. Purchase: Jam Handy.

• Helps explain important phases of aircraft maintenance. Titles and number of pictures in each:

1. Preparation for Fabric Covering (37); 2. Inspection Before Fabric Covering (68); 3. Hand Tools for Fabric Work (70); 4. Covering with Fabric (74); 5. Rib Stitching (47); 6. Fabric Repair (58); 7. Mixing and Using Casein Glue (61); 8. Soldering (92); 9. Fabrication of Tubing (87); 10. Cable Splicing—Part I (89); 11. Cable Splicing—Part II (39); 12. Spray-Painting Equipment (73); 13. Cleaning and Painting Tie Rods, Struts and Sheet Metal (53); 14. Care and Cleaning of Spray-Painting Equipment (57); 15. Aircraft Tires—Part I (42); 16. Aircraft Tires—Part II (41); 17. Emergency Seaplane Flat Repair (80); 18. Adjustment of Hydraulic Brakes (33); 20. Geometric Construction—Part I (43); 21. Geometric Construction—Part II (36); 22. "T" Square and Triangles—Part I (31); 23. "T" Square and Triangles—Part II (6); 24. Drawing an Anchor Plate (25); 25. Forces in Flight (90); 26. Lift and Drag (95); 27. Plane Performance (104); 28. Stability (64); 29. Hydraulic Struts (56); 30. Weather (74); 31. Air Pilotage (91); 32. Brake and Landing Gear Mechanism—Part I (34); 33. Brake and Landing Gear Mechanism—Part II (62); 34. Landing Gears and Brakes (64); 35. Line (57); 36. Hydraulic Mechanisms (46); 37. Cleaning the Airplane (38); 38. Care and Repair of Flight Controls (65); 39. Stresses in an Airplane (65); 40. Splicing a Line (62); 41. Major Assemblies and Disassemblies—Part I (48); 42. Major Assemblies and Disassemblies—Part II (54); 43. Rigging Changes after Flight Check (43); 44. Aircraft Nomenclature—Part I (47); 45. Aircraft Nomenclature—Part II (58); 46. Aircraft Nomenclature—Part III (58); 47. Aircraft Nomenclature—Part IV (30).

Aviation Metalsmiths. (One kit—16 films) Purchase: Jam Handy.

• Fundamentals of aviation metalsmithing; actual problems with step-by-step demonstrations of how to do it. Titles and total pictures in each film:

1. Tool Box—Part I (69); 2. Tool Box—Part II (34); 3. Tool Box—Part III (56); 4. The Metalsmith's Tool Kit (76); 5. Repairing Sheet Metal Surfaces (54); 6. Properties of Metals—Part I (70); 7. Properties of Metals—Part II (30); 8. Protection of Metals—Part I (58); 9. Protection of Metals—Part II (33); 10. Slotted Anchor (60); 11. Internally Threading a Plate—Making a Stud—Extracting a Broken Stud (67); 12. Hinge Fitting (43); 13. Grinding and Sharpening (21); 14. Making and Drilling Riveted Patch—Hand and Pneumatic Riveting—Removing Rivets (93); 15. Flanged Parts Tray (94); 16. Metal Finishing (63).

Regarding Free Loan Subjects

♦ Unless a price is indicated in the first two lines of each subject listed, it is most likely available on free loan. However, where prices for rental or print sale were not available they may not be given. Note the sponsor source in this case. Where sources indicate a national advertiser or manufacturer, *free loan* (requiring only payment of shipping charges to and from the borrower's location) is indicated.

Aviation Series. (50 frames each) si. SVE.

Slide films on the following aircraft subjects, designed to furnish a general background:

Historical	Aerial photography
Construction	Aircraft in other industries
Engine	
Instruments	Famous flights and fliers
Propellers	Army aircraft
Lighter-than-air	Navy aircraft
Land planes	Radio and aircraft
Seaplanes	Accessories
Parachutes	Special equipment
Maintenance	Aircraft schools
Autogyros	Gliders and light planes

CAA Communications System. sd—color—$9.10. Castle. CA 7

Explains the operations and functions of the various facilities used in the Civil Aeronautics Administration communications system.

The History of Aeronautics. (40 pictures) Vis Sci.

Presents a chronological portrayal of every important milestone in aviation history, including a frame on the 1943 Heliocopter.

History of Aviation. (40 frames). si. Purchase: Vis. Sci.

• Elementary treatment of aviation milestones.

Automotive Industry

BUS OPERATION

MOTION PICTURES

Operator & His Job, The. (12 min) 16sd-$22.88. USOE-Castle. OE491.

This visual aids unit illustrates by typical situations the three prime responsibilities of the bus operator—the safety and comfort of his passengers and people on the streets; maintenance of schedules; and a courteous, friendly, and helpful attitude towards passengers.

Operator & His Passengers, The. (18 min) 16sd-$30.01. USOE-Castle. OE492.

This visual aids unit emphasizes the importance of good customer relations, and, through various typical situations, points out ways of handling problems that may arise—such as expired transfers, people who miss their stops, talkative persons, and passengers who crowd at the front of the bus.

Operator & Safety, The. (19 min) 16sd-$30.74. USOE-Castle. OE493.

This visual aids unit points out the importance of safety in bus operations. It shows what safety checks should be made; what safe following distance is; and how to operate safely in passing, at intersections, at bus stop zones, and under special weather conditions.

School Bus Operation—Part I: Care & Maintenance. (13 min) 16sd-$23.60. USOE-Castle. OE494.

This visual aids unit points out the importance of daily and weekly maintenance checks and the points to be checked; how to start, steer, and stop the bus; and how to double clutch; safe driving habits.

School Bus Operation—Part II: Passengers, Driving Hazards, Safety. (14 min) 16sd-$25.71. USOE-Castle. OE495.

This visual aids unit emphasizes the driver's responsibility for the safety of child passengers and shows, through several typical situations, safe driving habits and safety in handling children when they are getting on and off the bus.

Transportation (Bus-Truck-Taxi). (1 rl) 16sd. Voca Guidance.

Devotes considerable time to the job of the bus driver, showing training he receives. Shows various jobs in trucking industry, such as dispatchers, superintendents, and rate clerks. Describes taxi cab business.

ENGINEERING

Brakes

MOTION PICTURES

Air Brakes—Principles of Operation. (25 min) 16sd. Purchase: Castle.

• Detailed illustration of air brake mechanism.

Hydraulic Brakes—Principles of Operation. (24 min) 16sd. Purchase: Castle.

• Explanation of the complete mechanism and operation of the hydraulic brakes.

The Hydraulic System. (12 min) 16sd—$22.15. USOE-Castle. OE 483

Shows how to check brake pedal travel; examine the brake lining; adjust the brake shoes; and inspect and adjust the hydraulic brake fluid system.

SLIDE FILMS

Bendix Brakes. sd. Bendix Products.

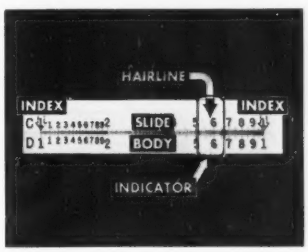
Explains the theory of hydraulic brakes and details the service procedure in the installation of new shoes.

Body

MOTION PICTURES

Making of Safety Glass. (30 min) 16si-transportation loan. Ford motion picture production made in cooperation with USBM.

Shows in detail the making of safety plate for automobiles.



The Slide Rule ("C" and "D" Scales)

Electrical System

MOTION PICTURES

The Battery, Ignition, and Electrical System. (26 min) 16sd—$38.75. OE 462

Shows how to check and service the battery; how to check the starting motor and the generator; how to check the lighting circuit and electrical instruments; and how to check and test the lighting system.

Charging Storage Batteries. (16 min) 16sd. Purchase: Castle.

• Important points vital to doing a thorough job of battery charging.

Ignition & Spark Plugs. (25 min) 1944. 16sd. Purchase or rental: Bray.

Entire ignition system of the automobile with all its parts shown in straight photography and animation.

Modern Battery Shop Practice. (26 min) 16sd. Free loan: Thomas Edison Inc.

• How to design, equip and operate a battery shop.

Spark Plugs. 35si. Purchase: Ethyl.

• Lists and explains types and sizes of plugs as well as parts found in plugs of any type. Describes installation and servicing of plugs and explains how to tell whether "cold" or "hot" plugs are needed.

Story of a Spark Pug. (22 min) 16sd. Free loan, except transportation. Champion in cooperation with USBM.

Shows the principles of operations of internal combustion and the use of spark plugs in tractors, motor boat engines, and automobiles. Animated drawings show action and function of spark plug. Shows manufacturing processes in making plugs.

The Story of the Storage Battery. (28 min) 16sd. Willard in cooperation with USBM.

Reviews the development of the storage battery. Explains action of the electrolyte. Depicts scenes of manufacturing processes, including the molding of the containers, molding of the lead grids and the preparation of the lead peroxide, molding of the plate connectors, cutting and preparation of wood separators, molding of cell covers and filler caps of rubber, filling the cells with electrolyte, and sealing of the finished battery.

SLIDE FILMS

Auto Mechanics. (60 frames) 1941. si. SVE.

Wiring and electrical system in automobiles. Covers fuel combustion, carburetors, the motor, and the ignition system. Diagrams the entire electrical system.

Repairing Aircraft Tires

Better Ignition. Sd. Delco-Remy.

• Film and record kit on complete ignition system of motor vehicles. Delco-Remy Division of General Motors Corp.

Standard Duty Regulators. Sd. Delco-Remy.

• Film and record kit on operating, inspecting and servicing. Delco-Remy Division of General Motors Corp.

Engines

(See also Engines, P. 31)

MOTION PICTURES

ABC of the Automobile Engine. (20 min) 16sd. Free loan: Socony-Vacuum.

• Component parts of an automobile engine and how they operate; three basic ingredients: air, fuel and ignition, all personified as animated cartoon characters.

Anti-Freeze—A Story of Scientific Research. (1 reel) 16sd. Nat'l Carbon.

The performance of various types of anti-freeze in motor and cooling systems at controlled temperature of 40 degrees below zero.

Automobile Cooling System. (20 min) 16sd. Nat'l Carbon.

Shows charts of cooling systems; various radiator cleaners; methods of cleaning and pressure flushing.

The Cooling System and Fuel System. (22 min) 16sd—$33.60. USOE-Castle. OE 464

Shows how to check for leaks in the cooling system; how to check the fan and water pump; the mechanical operation of the carburetor; filters and vents; the fuel pump; and leakage in the fuel system.

The Engine Assembly. (19 min) 16sd—$30.74. USOE-Castle. OE 463

Shows how to check the cylinder head and block; intake and exhaust manifolds; under-chassis parts; valve mechanism and adjusting tappets; vents, screws, and air filters; oil filter and oil lines; and cylinder depression.

Engine Tests and Tune Up. (18 min) 16sd—$30.01. USOE-Castle. OE 465

Reviews how to adjust the automatic choke; check and adjust ignition; time the ignition; check and adjust valve tappets; adjust the carburetor; and explains how to make vacuum gauge tests.

4-Stroke Cycle Gas Engine. (10 min) 16si. Purchase: EBF.

• Shown in single cylinder "T" head-type of motor; a simplified carburetor, ignition system applied to single and multi-cylinder engines, water and air cooling.

Horsepower. (9 min) 16sd-$36. Jam Handy.

The application of horsepower to automobiles, its origin and meaning. How horsepower of automobile has been increased cylinder by cylinder.

Inside a Surface Condenser. (15 min) 16sd. Free loan: Allis-Chalmers.

• Simple power cycle and functions of condenser, how it fits into power plant and increases efficiency.

Lubrication Ain't No Problem. (10 min) 16sd. Free loan: Westinghouse.

• What happens when motors are undergreased, overgreased, or have dirt forced into bearings while greasing.

Making A V-Type Engine. (30 min) 1936. 16si-loan. Ford in cooperation with USBM.

From the ore, through the blast furnaces, adding alloys, casting the molten iron, through the heat treatment to the machining operations on sundry parts of the engine, to the checking of these parts for accuracy, to the assembly of all parts of the engine, tested and placed in the chassis.

Power. (10 min) 16sd. Jam Handy.

Four stroke cycle engine, its use in the automobile.

Where Mileage Begins. (19 min) 16sd. Free loan: Socony-Vacuum.

• Complete assembly of a motor, part by part, without visible human assistance.

SLIDE FILMS

Allen Method of Modern Motor Tune-up. Allen.

Illustrates the principles of operation and trouble shooting in relation to the modern automobile engine.

Four Firsts of Motor Maintenance. (15 min) 35sd. Free loan: Westinghouse.

• Dirt, friction, moisture, and vibration; results depicted by photos and drawings. (This film grouped with *Ten Checks of Electrical Control Maintenance.*)

That High Power Top Inch. sd. Perfect Circle.

Shows service procedure for replacement of piston rings.

Transmission

MOTION PICTURES

Around the Corner. (11 min) 16sd-$36. Jam Handy.

The automobile differential in operation, its principles and the steps leading to its development.

The Clutch and Hand Brake. (12 min) 16sd—$22.15. USOE-Castle. OE 482

Shows how to determine the amount of clutch pedal clearance or "lash"; correct abnormal clutch pedal lash; check clutch for slipping, grabbing, or drag; and inspect and adjust the hand brake.

Soft Pedal. (10 min) 16sd. Jam Handy.

Operation and action of drive shaft, universal joint and differential, and clutch pedal are shown.

Spinning Levers. (10 min) 16sd. Jam Handy.

The principles of the spinning lever and its relation to the automobile are illustrated.

Transmission, Drive Shaft, and Differential. (14 min) 16sd—$25.71 USOE-Castle. OE 485

Shows how to check the transmission gear shift mechanism; how to inspect the drive shaft and the differential; and how to test the running condition of the transmission, drive shaft, and differential.

Wheels & Mounting

MOTION PICTURES

Curve Control. (10 min) 16sd. Jam Handy.

Types of steering mechanisms illustrated with steering principles given.

Springs. (13 min) 16sd. BIS.

It demonstrates the principle on which all springs operate and shows their actual manufacture. Animated diagrams show the difference in action between the short and long spring on a car and the advantage of each. The shock absorber, the friction type and the hydraulic type.

Steering, Wheels, Front and Rear Axles. (19 min) 16sd—$31.44. USOE-Castle. OE 484

Shows how to check for play in the steering wheel; check the front and assembly for excessive play; correct wheel runout; make a toe-in test; and test springs, axles, and overall backlash.

General

MOTION PICTURES

Automobile. (15 min) 1942. 16si-$24. or write for nearest distributor. EBFilms.

The assembling of parts of automobile; operations of the engine, transmission and differential.

Automotive Service. (1 rl) 16sd. Voca Guidance.

Shows motors being serviced, including bearing replacement, valve grinding, cylinder reboring, and welding. Explains need for automotive electrician. Adjustment of brakes and soldering of radiators are also illustrated.

Down the Gasoline Trail. (10 min) 16sd. Jam Handy.

An animated drop of gasoline is followed step by step through the fuel system. The inner workings of the fuel system shown.

Elements of the Automobile Series. (Six parts, 100 min) 16si. Purchase or rental: Bray.

• Explanation of principles and functionings of hidden mechanism. Film titles and running time of each: Part I. The Differential (15); Part II. The Engine (20); Part III. Carburetor (10); Part IV. Ignition (25); Part V. Transmission (20); Part VI. Cooling System and Brakes (10).

Fork Liftruk (Fork Lift Truck). 5, 7½ and 10 tons capacities. (400 ft) si. Free loan: Silent Hoist & Crane Co.

• In service with lumber yards, building supply dealers and concrete pipe manufacturers; yard applications and shipside chores; lifting, carrying and spotting lumber, sheet rock, concrete pipe; loading and unloading trucks.

Get Going! (1 reel) 16sd. Jam Handy.

Shows how a force acts to make things start; how increasing the power or cutting down weight will help the moving force; how sacrifice in weight causes loss in durability and strength; the balance which has been achieved in the modern motorcar between power and weight to deliver the utmost in acceleration without loss of durability or economy.

Here's Your Worksaver. (15 min) 16sd-color. Free loan: Princeton.

• Yale & Towne's new electric lift truck in action in dozen plants, picking up, carrying and stacking as much as 6,000 pounds at a time; handling such varied products as ginger ale, sheet metal, packaged goods, iron castings, chemicals and glass blocks.

A Shortcut to the Newer Films

For your convenience in noting the newer films, a boldface dot precedes the description of productions made since the Second Edition.

Introduction to Preventive Maintenance. (13 min) 16sd-$22.88. USOE-Castle. OE461.

Reasons for preventive maintenance; objectives of the preventive maintenance program; importance of preventive maintenance in truck operation; typical checking and testing procedures; maintenance of effective record systems.

Just a Gasket. (38 min) 16sd. Color. Free loan: Johns-Manville.

• Manufacture of gaskets with emphasis on automatic machinery employed in their production.

Keeping Your Car Fit. (12 min) 16sd—$22.15. USOE-Castle. OE 488

Explains why a weekly checkup on tires, battery, engine oil, and radiator is necessary; why a car should be lubricated regularly and the engine oil and gear lubricants changed; why the oil filter element should be replaced regularly; and why the cooling system should be inspected periodically.

Know Your Car. (15 min) 16sd—$26.43. USOE-Castle. OE 486

Shows construction of a car chassis; how the engine converts gasoline into power; the functions of the clutch, transmission, and rear axle; how brakes stop the car; how the electrical and cooling systems function; and what the telltale gages on the instrument panel indicate.

Krane Kar Mobile Swing-Boom Crane. 1½, 2½, 5 and 10 tons capacities. (400 ft) si. Free loan: Silent Hoist & Crane Co.

• Krane Kar in service with industrial firms, public utilities and railroads; lifting, carrying and spotting applications; handling miscellaneous cargoes and loads; indoors and in yards around shipping platforms; loading and unloading trucks, trailers and railroad cars; hook loads and electric-magnet operations.

Lest We Forget. (10 min) 16sd. GM.

Briefly traces the progress of the family automobile from "horseless carriage" days to the present.

Life-Line Motors. (10 min) 16 or 35sd. Free loan: Westinghouse.

• Story of the first fully engineered, all-steel motor made available to industry.

Lift-O-Krane Combination Crane Truck-Ram Truck-Fork Truck. A 3-in-1 machine of 5, 7½ and 10 tons capacities. (400 ft) si. Free loan: Silent Hoist & Crane Co.

• Shown first operating as crane truck with boom attachment featuring "live" load line for handling hook loads—sling loads, net loads, etc. Same machine with boom removed and actuating as a fork lift truck. Boom removed and fork arms folded back and with ram now attached, handling pipe and other hollow-center loads.

Oilgear Hydraulic Traversing Mechanism — Principles of Operation. (21 min) 16sd. Purchase: Castle.

• Title is self-explanatory.

Our America. (29 min) 16sd. Free loan: Ideal.

• Comparisons of American industry, past and present, and of production in factory, mine and farm. Dodge Motors.

The Periodic Checkup. (18 min) 16sd—$30.01. USOE-Castle. OE 489

Shows the necessary steps in the periodic checkup of a car, including tuning up the engine, servicing the brake system, inspecting the steering system, and inspecting chassis and body.

Servicing of Clark Fork Trucks (Part I).—Preventive Maintenance. (15 min) 16sd. Free loan: AAF.

Repairing Structural Tubing

• General inspection and periodic maintenance checks for Clark Fork Truck.

Servicing of Clark Fork Trucks (Part II)—Major Repairs. (30 min) 16sd. Loan: AAF.

• Procedures to be followed in making major repairs on Clark Fork Trucks.

Trouble Shooting Your Car. (12 min) 16sd—$22.15. USOE-Castle. OE 490

Shows what a driver should do to locate and correct minor car troubles; how to follow an orderly and step-by-step procedure in checking why a car won't start; and how to recognize symptoms of impending trouble.

Trucking. (10 min) 16sd. Color or b & w. Purchase or rental: Barr.

• Logging trucks, oil tankers, produce trucks and livestock trucks shown. Routine of livestock hauling followed from beginning to end; necessary care of trucks, safety features and driver's time clock.

Years of Progress. (32 min) 16sd. Modern.

An overview of the origins of the various phases of science which have any bearing on the modern automobile. Sponsored by Chrysler Corp.

SLIDE FILMS

Automobile Industry, Careers In. $2. SVE.

Automobile Manufacture, River Rouge Plant. $2. SVE.

Automotive Mechanics No. 1. (5 kits, 35 films). si. Purchase: Jam Handy.

• Complete instruction in mechanical principles and operation of automobile. Titles in each kit and total pictures in each film:

Kit A: 1. The Four-Stroke Cycle Internal Combustion Engine—Part I (44); 2. The Four-Stroke Cycle Internal Combustion Engine—Part II (83); 3. Multiple Cylinder Engines (81); 4. The Carburetor (179); Fuel Feed Systems (58); 6. The Ignition System (85); 7. Engine Lubricating System (73); 8. The Cooling System (83).

Kit B: 1. Mechanical Linkage (58); 2. The Clutch (54); 3. The Transmission (66); 4. The Differential (41); 5. Completing the Transmission (66); Rear Axles (57).

Kit C: 1. Bearings (54); 2. Wheels, Rims and Tires (78); 3. Brake Drums and Shoes (85); 4. Brake Operating Linkage (57); 5. Hydraulic Brakes (66); 6. Power Brakes (92); 7. Springs (103); 8. Shock Absorbers (52); Front Axles and Steering Gear (79); 10. Wheel Alignment and Balance (135).

Kit D: 1. Electricity and the Storage Battery (Part 1—97); 2. Electricity and the Storage Battery (Part 2—91); 3. The Generator (115); 4. Current and Voltage Regulation (110); 5. The

Starting Motor (89); 6. Chassis Electrical Systems (42).

Kit E: 1. Ignition Trouble (126); 2. Engine Tune-Up—Part I (70); 3. Engine Tune-Up—Part II (106); 4. Power Transmissions Trouble (81); 5. Safety Factors (105).

Automotive Mechanics No. 2. (4 kits—45 films) si. Purchase: Jam Handy.

• Organized to help train mechanics in care and repair of passenger cars and trucks. Titles in each kit and total pictures in each film:

Kit A: 1. Engine Tune-Up (32); 2. The Engine (49); 3. The Down-Draft Carburetor (Part 1—58); 4. The Down-Draft Carburetor (Part 2—40); 5. The Up-Draft Carburetor (51); 6. Modern Valve Reconditioning (55); 7. The Cooling System (37).

Kit B: 1. The Syncro-Mesh Transmission (151); 2. The 4-Speed Transmission (65); 3. The Clutch—Part I (51); 4. The Clutch—Part II (51); 5. The Hypoid Rear Axle (105); 6. The Full-Floating Rear Axle—Part I (38); 7. The Full-Floating Rear Axle—Part II (57); 8. The 2-Speed Rear Axle (80).

Kit C: 1. Knee Action—Part I (27); 2. Knee-Action—Part II (60); 3. Knee-Action—Part III (53); 4. Hydraulic Brakes (68); 5. Vacuum Power Brakes (45); 6. Shock Absorbers (61); 7. The Steering Gear (103); 8. Wheel Alignment—Part I (62); 9. Wheel Alignment—Part II (49); 10. Wheel Alignment—Part III (52); 11. Wheel Balancing (69).

Kit D: 1. The Wiring System (44); 2. The Ignition System (76); 3. The Generator Regulator (69).

Kit E: 1. The Vacuum Gearshift (72); 2. Cab-Over-Engine Trucks (63); 3. Metal Bumping and Hot Shrinkage (52); 4. Major Body Repairs (67); 5. Turret Tops (Part 1—59); 6. Turret Tops (Part 2—138).

Introduction to Preventive Maintenance

Ceramic & Glass Industries

(See also Optics & Photography, P. 58)

MOTION PICTURES

ABC of Pottery Making, The—The Coil Method. (15 min) 1938. 16si. U. of So. Cal.

Forming of the base, application of the coils, blending one coil into another; shaping on the potter's wheel. The other tools used are covered in this film.

Brick—From Clay to Pavement. (10 min) 1937. 16sd-transportation only. USDA.

The final product, vitrified paving brick, is shown first as clay and is carried through all the processes of manufacture.

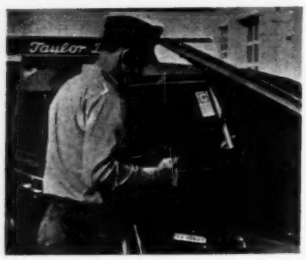
Clay, Hands & Fire. (20 min) 1938. 16sd or si. Service charge, $1.25. Copeland & Thompson.

Complete story of manufacture of Spode dinnerware from digging of the clay to the use of the ware at tea time.

Clay Pottery. (10 min) 1941. Purchase or rental: Brandon.

Digging clay from mine; weathering of the clay; compression and working of clay to remove air pockets; shaping, drying, and smoothing; firing and glazing.

Craftsmanship in Clay: Glaze Application. (10 min), sd-color. Purchase: Indiana U.



Trouble Shooting Your Car

• Skilled potter demonstrates four methods of glaze application: dipping, pouring, brushing and spraying; proper preparation and precise finishing before firing.

Craftsmanship in Clay: Simple Slab Methods. (10 min) sd-color. Purchase: Indiana U.

• Shows wedging, forming candle-holder directly from lump of clay, rolling slab for simple tile, and constructing flower container from several pieces of clay.

Crystal Clear. (28 min) 16sd-color. Modern.

Depicts the making of fine glassware. Includes sequences on raw materials used, polishing, etching, carving, cutting, annealing, testing, packing, shipping, and displaying. Shows various processes which are employed in making different types of glassware. Sponsored by Fostoria Glass Company.

Glass Blowing Technique. (15 min) 1924. 16si-$24 or write for nearest distributor. EBFilms.

Part I: Elementary glass blowing, procedure and manipulation. Part II: Shows methods of forming bulbs, and techniques in joining tubes of unequal diameter.

Glaze Application. (10 min) 16sd. Color. Purchase or rent: EdFilms; LibAssn; Ind. U.

• Explains elements of pottery glazing and the four main methods of applying glaze.

Heritage of Glass. (25 min) 16sd-color. Free loan: Modern.

• Manufacture and use of various flat glass products of Libbey-Owens-Ford.

Looking Through Glass. (18 min) 1943. 16sd. BIS.

The manufacture of plate glass and glass objects in British factories showing the hand craftsman at work alongside the mass-production machines.

Making Glass. (14 min) 1939. 16si-$24; rent-$1.50. Sazin.

Four different objects are shown in process of making.

Making of Fine China, The. (20 min) 16-color. Free loan: Castle.

Process is shown of the manufacture of fine pieces of pottery in the Lennox plant.

Manufacture of Laminated Glass. (8 min) 16sd-loan. Pittsburgh.

Step-by-step manufacture of laminated glass is shown.

Manufacture of P C Glass Bricks. (8 min) 16sd-loan. Pittsburgh.

Manufacturing steps are shown.

Manufacture of Pennvernon Window Glass. (8 min) 16sd-loan. Pittsburgh.

Various manufacturing steps are shown.

Manufacture of Plate Glass & Mirrors. (15 min) 16sd-loan. Pittsburgh.

From the raw materials to the finished product, the various steps in manufacture are shown in a trip through the factory.

Mortar and Glass. (20 min) 16sd-color. Free loan: American Structural.

• Proper methods of laying glass block panels.

Pottery Making. (11 min) 1939. 16sd-$50. EBFilms.

Mixing clay, shaping, trimming and preparing for firing; ancient method of using coils of clay; molding in a plaster cast; making angular shaped pottery by cementing together slab pieces; methods of decorating and firing; techniques of applying glazing slip by dipping, brushing, spraying and pouring.

Safety Glass. (30 min) 16 & 35si. USBM.

From the preparation of raw materials to the finished product, the story of safety glass is shown.

Sand & Flame. (20 min) 16sd. GM.

The making of glass from sand and flame: 1. automatic bottle making; 2. manufacture of fine glass tubing; 3. transformation of glass marbles into fibres; how these fibres are spun into glass threads for the weaving of cloth and tape for electrical insulation; 4. the manufacture of glass brick; 5. plate glass manufacture including the furnacing, rolling, cutting, grinding, and polishing; 6. how plate glass panes are made into shatter-proof glass.

Watts in Glass. (26 min) 16sd-color. Free loan: Owens-Corning.

• The role of Fiberglas-base electrical insulating materials in design, manufacture and performance of electrical equipment.

SLIDE FILMS

Brick & Stone Masonry. $2. SVE.

Ceramic Engineering as a Career. $2. SVE.

Chemical Industry

MOTION PICTURES

Atacama Desert. (19 min) 16sd. OIAA.

The working of rich nitrate deposits in the deserts of northern Chile by modern mining methods.

Carbon and Its Compounds. (10 min) 16sd. Color or B & W. Purchase: Coronet.

• Beginning with diamond, pencil and chunk of coal, film explains carbon's simple compounds and introduces hydrocarbons and more complex chain and ring compounds.

Catalysis. (10 min) 1937. 16sd. EBFilms (write for nearest distributor).

Concentration by absorption, intermediate compound formation, poisoning of catalysts, negative catalysts, chain reactions, breaking of reaction chains are shown as factors which may be responsible for catalytic action.

Characteristics of Liquids. (9 min) 16sd. Brandon.

The properties of liquids, their forms; why surface film is manifested; the revelation of tension viscosity in drops, jets and bubbles; the properties and structure of matter are covered in this study.

Characteristics of Solids. (9 min) 16sd. Brandon.

Basic conceptions of nature of solids, and the physical laws governing them, are covered in this study of the characteristics of matter.

Chemical Reactions. (20 min) 16sd. Edit PS.

The nature of chemical reactions, relationship between nucleus and electrons, atom composition are illustrated in this film.

Chemistry & a Changing World. (11 min) 1940. 16sd-$50. EBFilms (write for nearest distributor).

Points out chemistry's important place in the world, shows the work of research chemists and chemical engineers from the inception of electric furnace phosphorus to its many uses as a completed product.

Chemistry of Combustion. (1 reel) 16si-sd-$22.50-$30; rent-$1-$1.50. Edit PS.

A series of chemical experiments in the phenomena of oxidation and combustion.

The Chemistry of Fire. (46 min) 16sd—$54. Navy-Castle. MN 61a

Demonstrates how the elements fuel, oxygen, and ignition temperature must be present in order to have fire; differentiates between flash point and ignition point of fuels; and gives two ways in which a fire may be extinguished.

Colloids. (30 min) 1938. 16si-$60. Rolab.

Classifies most common types of colloids after given evidence of the multitude and variety of colloids. Shows how to produce colloids artificially. The Tyndall movement of ultra microscopic particles and production of colloids by electric arc; migration of particles in the electric field and physio-chemical reactions are shown.

Colloids. (10 min) 1938. 16sd. EBFilms (write for nearest distributor).

Colloidal suspensions: liquid in gas—fog; gas in liquid—whipped cream; solid in liquid—clay and india ink; liquid in liquid—mayonnaise.

Crystallization. (20 min) 16si. Purchase or rental: Bray.

Microscopic views show crystals in form of icicles and snowflakes. Quartz, amethyst, and salt are shown. By experiments under the microscope is shown the formation of crystals, the peculiarities of growth and shape-determining factors.

Distillation. (13 min) 16sd. BIS.

A laboratory demonstration shows how a solid and two liquids having different boiling points may be separated by fractional distillation. Animated diagrams show how carbon and hydrogen atoms combine to form chains, rings, and combinations of both. How various ingredients of crude petroleum may be separated by boiling is diagrammed.

Dr. Langmuir—On Surface Chemistry. (30 min) 1940. 16sd. Purchase or rental: Brandon.

Experiments and discussion by Dr. Langmuir on surface chemistry.

Excursions in Science #7. (10 min) 1944. 16sd. GE.

Presentation of crystals, their characteristics and some of their uses. It shows how crystal structure can be used in identifying materials, how single crystals and metals differ in strength from multiple crystal structures; how thin wafers of quartz accurately cut and mounted in piezo oscillators control the wavelength of radio stations.

Halogens, The. (10 min) 16sd. Purchase: Coronet.

• Laboratory demonstration and lecture present physical and chemical properties of fluorine, chlorine, bromine and iodine—free and in compound.

How Ether Anesthesia is Manufactured. (18 min) 16si. Mallinckrodt.

The chemical composition of ether anesthesia is shown graphically, with actual manufacturing process shown photographically and in animation.

In Nature's Workshop. (10 min) 16sd. rent-$2. B & H.

Microscopic photography of snow and ice crystals. Examples of silicic acid, quartz, lime, amethyst, antimony glance crystals. Formation and growth of crystals formed from the following solutions: potassium chlorate, potassium bichromate, pyrogallic acid, table salt, salicylic acid, camphor, salicin, benzoic acid, cinnamon acid, etc.

Magic Key, The. (20 min) Dow.

A silent film with titles produced for the American Chemical Society to show the method of extracting bromine from sea water.

Metal Crystals. (11 min) 1944. 16si. Am Soc for Metals.

Common shapes of crystal formation; microscopic technique; temperature solidification.

Molecular Theory of Matter. (10 min) 1932. 16sd-$50. EBFilms (write for nearest distributor).

Molecular theory of matter—changes in states; behavior of matter in gaseous, liquid, and solid states; the Brownian movement.

Oxidation & Reduction. (10 min) 1932. 16sd. EBFilms.

Oxidation and reduction are shown in burning phosphorus in an experiment. Decomposition of mercury rust is done to discover the component of air responsible for the oxidation. Blast furnace operation shows process of reduction as does magnesium burning in dry ice.

Problem-Solution-Result. (25 min) 16sd-color. Free loan: Hercules.

• At the Hercules Experiment Station scientists are seen at work developing a chemical for manufacture of synthetic rubber; chemical plants' operation and applications of products in manufacture of lacquers, plastics, insecticides, rayon and paper.

Properties of Water. (11 min) 1941. 16sd. Coronet.

Experimental demonstrations illustrate physical and chemical properties of water; solubility of solids, liquids and gases in water; crystallization and super-saturation; energy changes of water to ice and to steam.

Story of Sulphur. (10 min) 1936. 16sd-$30; rent-$1.50. (15 min) 1936. 16si-$22.50; rent-$1. Edit PS.

Story of sulphur from the drilling and blasting; into vats and tanks; loading onto cars for transportation. Experiments in using sulphur with other materials are illustrated.

Study in Black, A. (33 min) 16 sd-color. Free loan: Cabot.

• Manufacture and handling processes of carbon black industry, discussing flames, raw materials, research, channel process, furnace process, properties, size and surface, product and process development, and control, integration, skills involved, and shipping.

Sulfur and Its Compounds. (1 rl) 16sd-color—B. & W. Coronet.

Devoted to a study of physical and chemical properties of sulfur and its valuable compounds, with emphasis on sulfur dioxide and sulfuric acid. Practical applications are also illustrated, such as the vulcanizing of rubber, "pickling" metal sheets, and compounding of life-saving sulfa drugs.

Sulphur. (20 min) 1941. 16sd-loan. Texas Gulf in cooperation with USBM.

Story of sulphur from location of deposits through processes shown in animation.

Surface Chemistry—Dr. Langmuir. (30 min) 16sd. Purchase or rental: Brandon.

• Dr. Irving Langmuir, Nobel Prize winner for

Anti-Freeze—A Research Film (See P. 16)

1932 in Science, describes experiments in surface chemistry which shed light on properties of molecule.

Velocity of Chemical Reactions. (10 min) 1937. 16sd $50. EBFilms (write for nearest distributor).

Describes with photography and animation, the effect of the nature, the concentration, and the temperature of reacting substances on the rate of chemical reactions. Practical examples with wood, aluminum, iron, and other substances are given to illustrate these phenomena. The dynamics of reversible reactions and of chemical equilibrium are shown by schematic drawings that give clear conceptions of rather abstruse processes.

S L I D E F I L M S

Atmosphere, The. $2. Buskett-SVE.

Carbon & Its Oxides. $2. Buskett-SVE.

Carbon, Calcium, etc. $2. Vis Sci-SVE.

Chemical Warfare. (80 frames) si. Purchase: Vis. Sci.

• Corrects misconceptions of gas warfare.

Chemistry. (Series of 8 rolls) si. $14. Purchase: Vis. Sci.

• Minimum essentials for high school level in areas of C-1 Oxidation, Combustion; C-2, Electrolysis, Synthesis; C-3, Metals and Non-Metals; C-4, Formula Writing and Sulphur; C-5, Ionization, C-6, Carbon and Calcium; C-7, Metallurgy and Organic Chemistry; C-8, Electron Theory.

Chemistry & Chemical Engineering as a Career. $2. SVE.

Chlorine & Its Compounds. $2. Buskett-SVE.

Electrolysis, Reduction, Synthesis. $2. Vis Sci-SVE.

Electron Theory. $2. Vis Sci-SVE.

Facts & Laws. $2. Buskett-SVE.
Foundations of chemistry.

Fire & Fuels. $2. Buskett-SVE.

Ionization, Neutralization, Nitrogen Cycle, etc. $2. Vis Sci-SVE.

Laws & Theories. $2. Buskett-SVE.
Chemistry.

Metallurgy & Organic Chemistry. $2. Vis Sci-SVE.

Metals & Non-Metals. $2. Vis Sci-SVE.

Nitrogen, Compounds of. $2. Buskett-SVE.

Oxygen & Hydrogen. $2. Buskett-SVE.

Physical & Chemical Changes. $2. Vis Sci-SVE.

Pictorial Chemistry Series. Purchase: SVE.

• Series of five films on basic chemical concepts, terms and formulas, explained with original illustrations and cartoons. 1: Acids, Bases and Salts; 2: Ionization and Electrolysis; 3: Metals; 4: Non-metals; 5: The Halogens—A Typical Chemical Family.

Problems, Sulphur, Nomenclature, Formula Writing. $2. Vis Sci-SVE.

Safety in Chemistry Laboratory. (53 frames) Purchase: Vis. Sci.

• Tips on avoiding accidents at work.

Sulphur & Its Compounds. $2. Buskett-SVE.

Water. $2. Buskett-SVE.
Foundations of chemistry.

Electronics Industry

ELECTRONIC THEORY

M O T I O N P I C T U R E S

Adventures in Research. (20 min) 16sd. Modern.

Dr. Phillips Thomas, well-known research engineer, is shown in a lecture-demonstration. Shows various kinds of vacuum tubes and numerous uses of the device in communication, industry, health, and entertainment. Demonstrations include the cathode-ray tube, the photoelectric cell, the Stroboscope, and others. Last half of film is devoted to a study of radar. Sponsored by Westinghouse Electric Corp.

Basic Electricity. (20 min) 16sd. Color. Loan: USAF.

• Basic principles of electricity.

Basic Electronics. (17 min) 16sd. Color. Loan: U. S. Air Force.

• A film of instruction on fundamentals of electronics.

Bright Path. (35 min) 16sd. Apply: Int'l Film.

• Explains details of generation, transformation, transmission and distribution of electric power.

Capacitance. (31 min) 16sd—$37.28. Navy-Castle. MN 1540a

The Cathode-Ray Tube. (15 min) 16sd. Purchase: Castle.

• How this tube works and its application in the world of today.

Chemical Effects of Electricity. (15 min) 1930. 16si. EBFilms.

Shows making of dry cells, storage batteries, electric batteries. Covers electrolysis, electroplating, electrotyping, making copper anodes, producing aluminum from bauxite by electrolysis.

Coils & Electric Currents. (13 min) 16si-$30; rent $1.50. Edit PS.

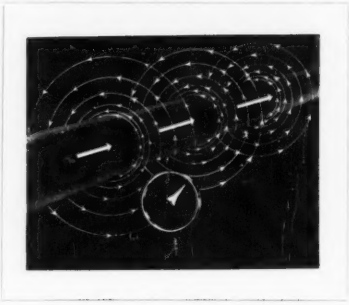
Explores the nature of the fields of force about a current-carrying wire and the theory of solenoids and electromagnets, induction coils, and electric motors.

Commutation of DC Machines. (24 min) 16 or 35sd. Westinghouse.

• Theory of commutation, and troubles that may arise from stray oil and grease, moisture, loose mounting, worn brush-holder boxes, grooving, faulty seating of new brushes, and irregular inspection.

Dial Comes to Town. (20 min) 16sd. Free loan: AT&T.

• Informs telephone users about dial cut-over and illustrates proper dial usage.



The Electron—An Introduction

The Diode. (17 min) 16sd. Purchase: USOE; Castle.

• Principles of the diode tube, x-ray tube, the diode as a rectifier, photo-electric cell, and other related principles.

Electrochemistry. (10 min) 16sd-$50. EBFilms (write for nearest distributor).

Shows the chemical reactions as dynamic processes; shows electrolytic decomposition of hydrogen chloride. Storage battery integrates both processes.

Electrodynamics. (10 min) 16sd-$50. EBFilms (write for nearest distributor).

Covers basic principles of electromagnetism and current electricity. Presents magnetic fields about wire carrying current and of a coil, electromagnets, magnetic hypothesis, AC and DC generators, induction by an electric current.

Electron, The—An Introduction. (16 min) 16sd-$27.88. USOE-Castle. OE175.

Explains the nature of electrons, electron flow in solid conductors, electromotive force, control of electron flow, electron flow and magnetic fields, types of electron flow, and induced electron flow.

Electronics at Work. (20 min) 16 or 35sd. Free loan: Westinghouse.

• A general explanation of the electronics theory and its everyday application.

Electrons. (10 min) 16sd. EBFilms (write for nearest distributor).

By straight photography and animation, conduction of electricity in liquids, gases, and vacuums proves the hypothesis that electricity consists of a unit elementary charge, the electron.

Electrostatics. (10 min) 16sd $50. EBFilms (write for nearest distributor).

Static electricity is presented as fundamental to understanding of theory of electricity. Depicts positive and negative electrification with role of insulators and conductors.

Elementary Electricity—Amperes, Volts, and Ohms. (8 min) 16sd—$11.39. Navy-Castle. MN 1540u

Elementary Electricity—Current and Electromotive Force. (10 min) 16sd—$14.09. Navy-Castle. MN 1540t

Elementary Electricity—Series and Parallel Circuits. (8 min) 16sd—$10.51. Navy-Castle. MN 1540v

Excursions in Science #3. (10 min) 16sd. GE.

Presents two stories dealing with magnetism:

Sheet Metal Shop

MOTION PICTURES

Bending & Curving. (40 min) 16sd. Navy.

Presents method of bending and curving long, narrow parts to desired shapes.

Blanking & Piercing. (15 min) 1943. 16si. Aluminum in cooperation with USBM.

Shows how to design tools with proper clearance, to set up tools for best results; how to lubricate thoroughly. Shows how to lay out sheet aluminum economically; shows techniques employed in cutting blanks and piercing holes in aluminum sheet.

Blanking & Punching. (30 min) 16sd. Navy.

Presents economical methods of cutting sheet metal to size, including shearing, sawing, punching, routing and gang drilling.

Blanking Sheet Metal on the Squaring Shear. (15 min) 16sd-$27.15. USOE-Castle. OE130.

Shows how to lay out tapered blanks on an aluminum sheet; how to set and adjust front and back gages and side stops; how to use hold downs and treadle; how to check blanks and further adjust machine; how to trim blanks. Animated drawings are used to explain operations of the shear.

Blanking Sheet Metal With Hand Snips. (18 min) 16sd-$30.01. USOE-Castle. OE131.

Shows how to care for and adjust the sheet metal snips; how to select snips for the job to be done; how to cut along a straight line; how to cut an outside circle and a notch; how to cut an inside line; how to remove burrs left by cutting.

Blanking with Rotary and High Speed Shears. (16 min) 16sd-$27.88. USOE-Castle. OE 292

Shows how to set up rotary shears, make test cuts, and operate the shears; how to set up high speed shears, make test cuts, and operate the shears.

Blanking With Swing Arm Router. (17 min) 16sd-$28.58. USOE-Castle. OE132.

Shows how to operate a swing-arm router; how to set up the work and template for routing; how to change router bits; how to rout internal contours; and how to rout external contours.

Drawing, Stretching & Stamping. (22 min) 1943. 16sd. Aluminum in cooperation with USBM.

Illustrates alloys best suited for drawing and stretching; shows single and double-action presses making cylindrical, rectangular and odd-shaped parts from aluminum sheets. Shows stamping, embossing, coining aluminum; how the choice of alloy influences tool design, clearances, radii, and reduction per draw.

Filing Template Metal. (15 min) 16sd-$27.15. USOE-Castle. OE129.

Shows how to clamp template metal on a bench and in a vise; how to select the correct file for each job; how to grip the file for different jobs; how to file a square edge and remove burrs; how the wrist is rotated for filing inside curves; how to file inside rectangles and remove fillets from corners. For illustration, a straight edge, an inside oval, an outside contour template, and an inside rectangle are used.

Finish Forming By Hand. (16 min) 16sd-$27.88. USOE-Castle. OE135.

Shows the tools and methods used for holding small aluminum bulkheads during forming; the grip of the mallet handle and the free movement of wrist and hand during forming (in slow motion); the successive stages of forming with a flat fibre strip (around the bend of the flange, along the flat of the flange and the final smoothing); the successive stages of shrinking large wrinkles with a forming tool; marking excess metal with a surface gage; and checking finished work with a contour template. In illustrating these operations, a long narrow bulkhead and a bulkhead having a sharp radius are used.

Forming Methods. (40 min) 16sd. Navy.

Shows the forming of flat parts by the use of drop hammers, punch presses, hydraulic and stretch presses.

Forming on a Hand Operated Brake. (17 min) 16sd-$29.29. USOE-Castle. OE134.

Shows how to lay out work for bending in a hand operated brake; how to set up brake for bend angle and bend radius, how to check test pieces and finished work; how to operate brake.

Forming on Rotary Machines. (17 min) 16sd-$28.58. USOE-Castle. OE290.

Illustrates forming a part on a slip-roll machine, marking bend lines, adjusting the rolls, and checking the part with a radius template. Shows the adjustment of a beading-roll machine, the forming of a bead at a specified edge distance, and the forming of shallow and final beads.

Forming on the Stretching Machine. (17 min) 1945. 16sd-$28.58. USOE-Castle. OE251.

Parts of the stretch press; how to operate the stretch press; how to set up the machine for a job; how to handle the production run.

Forming With a Drop Hammer. (17 min) 1945. 16sd-$29.29. USOE-Castle. OE291.

Purpose and nature of drop hammer forming; how to operate the pneumatic hammer; how to set up the punch and die; how to handle the production run on a single-hit job; how to dismantle the setup; how to use draw rings on a deep-draw job.

Forming With Rubber on the Hydraulic Press. (11 min) 16sd-$21.44. USOE-Castle. OE133.

Shows how sheet metal parts are formed with rubber on a hydraulic press; how to set up the work in the press; and how to operate the press. Also shows how a large power press operates, and how small hand presses compare with power presses.

General Sheet Metal Practice. (20 min) 16sd. Aluminum in cooperation with USBM.

Shows forming of aluminum sheet by manual and mechanical devices; shows bending, beading, hammering, flanging, edging; how to compensate for springback; and how to care for tools used.

Hand Methods of Forming Sheet Metals. (22 min) 16sd. Purchase: SoundMasters.

• Various types of tools and methods used in hand forming sheet metals.

Head Work. (27 min) 16sd. Loan: Lukens.

• Spinning and pressing of heads, both of steel and other ferrous and non-ferrous metals used in tanks, pressure vessels and other types of equipment.

Inspection of Sheet Metal Parts. (20 min) 16sd. Purchase: USOE; Castle.

• How to make a visual inspection and also spot checks, how to use work sheets to record inspection.

Jigs & Fixtures. (10 min) 16sd. McFarland.

Shows dies in cross section drawing to illustrate operation. Flow of metal shown in animation.

Machine Methods of Forming Sheet Metals. (20 min) 16sd. Purchase: SoundMasters.

• Different types of rollers, machines and tools used in forming sheet metals.

Sawing Template Metal. (17 min) 16sd-$28.58. USOE-Castle. OE128.

Shows how to use a job selector chart for width, pitch, set of teeth, and speed; how to identify raker, wave, and straight teeth; how to mount a saw blade on a band saw; how to select and adjust blade guides; how to saw to a layout line; how to "chew out" metal from a notch; how to remove burrs.

The Sheet Metal Worker. (1 rl) 16sd. Voca Guidance.

Shows jobs in furnace manufacturing and repair, operation of the sheet metal brake, metal roof, gutter, skylight and ventilating installations. Various hand forming operations in aircraft manufacturing are illustrated.

Shrinking and Stretching of Angles. (20 min) 16sd. Purchase: SoundMasters.

• V-block and the shrinking block; shrinking and stretching techniques using both hammers and pliers.

Spinning (Aluminum). (17 min) 1943. 16sd. Aluminum in cooperation with USBM.

Shows three methods of spinning aluminum: partly by hand, partly mechanically, entirely mechanically. Shows aluminum alloys most suitable for spinning.

Tube & Shape Bending. (13 min) 1943. 16sd. Aluminum in cooperation with USBM.

Shows proper procedure in bending aluminum tubing and shapes, keeping tube round at point of bend. Shows use of filler, mandrels and other supporting devices.

Purchase Sources of Training Films

Listings in these pages include many *purchase* sources where prints are available for outright sale as well as rental in some instances. Wherever possible rates are included; otherwise write the library, school or commercial distributor for latest price lists, etc.

Forming With a Drop Hammer

SLIDE FILMS

Draw Bench Operations. Navy-Castle. SN258.

Explains the purpose of the draw bench, demonstrates how a pattern is made, shows how the draw bench is set up for the pattern, and demonstrates how the machine is operated.

Sheet Metal Work. $2. SVE.

Simple Calculations for Flat Layouts. 35si. filmstrip. Loan: U.S. Navy.

• Several procedures to follow in calculating and laying out on paper and construction metal parts from such designs as flanges, bends, beads, seams and joggles.

Shipbuilding Industry

COPPERSMITHING

MOTION PICTURES

Bending Copper Tubing To a Wire Template. (22 min) 16sd-$34.31. USOE-Castle. OE102.

Shows how the tubing is annealed, cooled, and filled with rosin; how a wire template is made; how bends are marked on copper tubing; how bends are made and checked; and how to remove puckers which are too large or too closely spaced.

Brazing Flanges With Silver Solder. (13 min) 16sd-$23.60. USOE-Castle. OE104.

Shows how tubing and silver brazing flanges are fitted; how flux is applied; how heat is applied to draw silver solder in and out; and how to clean flange after soldering.

Brazing Flanges With Spelter. (19 min) 16sd-$31.44. USOE-Castle. OE103.

Shows how copper tubing is prepared for flanges; how flanges are fitted for brazing; how borax is applied before brazing flanges; how tube and flange are brazed over a forge; and how brazed flanges are prepared for installation on the hull.

The Coppersmith—Flaring and Reducing. (20 min) 16sd. Purchase: Castle.

• Work of the coppersmith.

The Coppersmith — Working Out Branches from A Line. (23 min) 16sd. Purchase: Castle.

• Title self-explanatory.

Tinning & Solder Wiping. (26 min) 16sd-$38.02. USOE-Castle. OE343.

Shows how to clean copper tubing for tinning; how flux is applied to copper; how to tin copper tubing by hand and by dipping; how solder wiping is done; and how copper reacts to heat when being tinned and solder wiped.

MARINE ELECTRICITY

MOTION PICTURES

Identifying & Precutting Cable. (19 min) 16sd-$31.44. USOE-Castle. OE112.

Shows how cable is precut and put on reels; how cable is salvaged; how to identify the VCLA cable used in merchant ships; and how cable is measured in circular mills and with an American wire gage.

Installing & Connecting Telltale Panel. (15 min) 16sd-$26.43. USOE-Castle. OE116.

Shows how to lay out telltale unit; how to remove insulation from cable; how to reinsulate conductors and cable; and how to connect conductors to the multi-connection box.

Laying Out & Installing Compartment Fixtures. (12 min) 16sd-$22.88. USOE-Castle. OE114.

Shows how to locate installations on a plan-view blue-print which gives no dimensions; how to lay out ceiling fixtures and studs; how to burn a hole for passage of cable and how to install ceiling fixtures.

Laying Out & Installing Kickpipes & Stuffing Tubes. (16 min) 16sd.-$27.88. USOE-Castle. OE110.

Shows how to distinguish the three types of kickpipes; how to lay out penetration areas; how to lay out and install single kickpipes; and how to lay out stuffing tube areas.

Laying Out & Installing Main Wireway. (21 min) 16sd-$32.87. USOE-Castle. OE111.

Shows how to lay out and install raceways and wireways; how to calculate the width of a hanger to be used; how to use the 8:1 radius rule; how to determine the spacing of hangers; and how to overcome obstacles in the route of the raceway.

Pulling & Installing Cable & Packing Terminal Tubes. (16 min) 16sd-$27.88. USOE-Castle. OE113.

Shows how to pull, strap, and straighten cable; how to prepare cable for pushing; how to prepare cable for pulling with a rope; and how to pack terminal tubes.

Wiring Telltale Panel. (17 min) 16sd-$28.58. USOE-Castle. OE115.

Shows the purpose of telltale units; how to strip cable; how to form and lace conductors on a jig; how to strip conductor ends and put on lugs; and how to hook up conductors and test connections.

MARINE MACHINERY INSTALLATION

MOTION PICTURES

Aligning & Installing Auxiliary Machinery. (17 min) 16sd-$28.58. USOE-Castle. OE96.

Shows how to lay out foundations for machinery installations; how to establish centers of holes for drilling; how to drill bolt holes in foundations to blueprint specifications; how to align machines accurately on foundations; and how auxiliary machine installations are checked.

Filing & Installing Chocks. (15 min) 16sd-$27.15. USOE-Castle. OE97

Shows how chocks are used in machinery installation; how they are surfaced smoothly and accurately and adjusted to given tolerances; how a machine is leveled by using chocks; how measurements are made for preparing chocks; how Prussian blue and chalk are used for adjusting chocks; how feeler gages are used in chock installation; and how foundation and chocks are drilled for bolts.

Filing and Installing Chocks

How to Check & Surface Foundations. (19 min) 16sd-$30.74. USOE-Castle. OE95.

Shows the main engine and variety of ship's auxiliary machines; the basic lines of a ship; how to check the location of machinery foundations to blueprint specifications; how to align and level foundations; and how to surface or smooth foundations.

Installing Valves & Strainer on Sea Chest. (13 min) 16sd-$22.88. USOE-Castle. OE99.

Shows how studs are ordered for tapped flanges; how studs are driven; how driven studs are checked for accuracy of driving; how valves are installed on sea chests; and how strainer is prepared for installation and installed on sea chest.

Laying Out & Installing Stern Tube, Tail Shaft & Propeller—Part I: Running a Temporary Line. (22 min) 16sd-$34.31. USOE-Castle. OE100.

Shows how the propeller post is prepared for running a temporary line; how targets are installed at the fore-and-aft end of the line; how to adjust a line to the center of bulkhead openings; how to eliminate the sag when a line has been run; how a temporary line check for proper position is made.

Laying Out & Installing Stern Tube, Tail Shaft & Propeller—Part II: Laying Off Bulkheads. (15 min) 16sd-$27.15. USOE-Castle. OE101.

Shows how to measure on bulkheads from the temporary line; how to establish the center of bulkhead openings after the line is taken out; the purpose of laying off the bulkheads; and when to run the permanent line.

Laying Out & Installing Stern Tube, Tail Shaft & Propeller—Part III: Running a Permanent Line & Boring. (32 min) 16sd-$44.47. USOE-Castle. OE341.

Shows how to run the permanent line; how to establish reference marks on bulkhead, propeller post, and doubler ring; how to install and adjust the boring bar; and how to rough-bore and finish-bore to specifications propeller post and various bulkheads.

Laying Out & Installing Stern Tube, Tail Shaft & Propeller—Part IV: Fitting Tube, Shaft & Propeller. (29 min) 16sd-$41.60. USOE-Castle. OE342.

Shows how the stern tube is installed and made secure; how the tail shaft is installed; how the propeller is swung into position and lined up; how the fairway cap and rope guard

are installed; and how the tail-shaft assembly is secured for launching.

Laying Out, Drilling, & Tapping Flanges on Sea Chest. (19 min) 16sd-$31.44. USOE-Castle. OE98.

Shows the component parts of a sea chest; how sea chests function; how flanges are prepared for valve installation; how locations of flanges are checked; how flanges are leveled to make metal-to-metal contact with valve bearing surfaces; how stud hole centers are laid out; and how stud holes are drilled and tapped.

PIPEFITTING

MOTION PICTURES

Covering Hot & Cold Pipes. (22 min) 16sd-$34.31. USOE-Castle. OE109.

Shows purpose of insulation; methods and tools used in applying various types of insulating materials; how to prepare paste and cut and paste canvas; types of stitches and how to use needle for sewing canvas; how to cover flanges; and types of materials used to cover cold pipes.

Cutting & Threading Pipe by Hand. (12 min) 16sd-$22.88. USOE-Castle. OE106.

Shows types of fittings and their use; use of pipe vise; use of cutter and hacksaw; swedging and its removal by reaming; selection and use of dies; proper threading and pipe thread taper.

Cutting & Threading Pipe on a Power Machine. (17 min) 16sd-$28.58. USOE-Castle. OE107.

Shows function and principal parts of power pipe threader; proper use and care of dies and cutting tools; proper lubrication; swedging effect and removal by reaming; and how to correct thread that is too large.

Installing Valves in Engine Room Systems—Part I. (12 min) 1945. 16sd-$22.88. USOE-Castle. OE123.

Explains the purpose of valves; identifies the principal engine-room units; shows the cycle of steam in engine room system; shows design and functions of basic type valves; reviews three major types of valves.

Installing Valves in Engine Room Systems—Part II. (16 min) 1945. 16sd-$27.88. USOE-Castle. OE124.

This visual aids unit shows the installation of a globe valve in the main steamline; typical installations of the gate, angle, and swing-check valves; and installations of flanged valves with threaded fittings, and a threaded valve where clearance is needed.

Installing Vitreous Fixtures. (19 min) 16sd-$30.74. USOE-Castle. OE121.

Shows correct handling of vitreous china fixtures; how to lay out, drill, and tap the seating; how to measure and cut brass studs; how to make water tight installations; how to assemble and connect the flushometer.

Laying Out & Installing Hangers. (19 min) 16sd-$31.44. USOE-Castle. OE120.

Shows the principal types of hangers used in marine pipe-fitting—stool, angle iron bracket, strap, rod, and saddle—and how to install them; how to determine correct length for hanger legs; and how to measure and cut hanger legs.

Making a Cold Bend on a Hand-Powered Machine. (13 min) 16-sd-$23.60. USOE-Castle. OE108.

Shows why bends in pipe are necessary; gives maximum and minimum pipe size for cold bending by hand; shows use of hand bender; methods used in measuring for bends using proper bend ratio and how to use table of factors; and how to use templates.

Measuring Pipe, Tubing & Fittings. (15 min) 16sd-$27.15. USOE-Castle. OE105.

Explains types and sizes of pipe and tubing; various weights and types of fitting—screwed, bolted, and welded; shows need for accurate measurement; explains ID and OD; shows how to measure for fittings, offsets and bends.

Pipe Fabrication With Jigs. (22 min) 16sd-$33.60. USOE-Castle. OE122.

Shows the purpose of the jig and how to plan its layout; how to lay out and assemble targets for a jig; how to set targets and hangers using a pipe section as a template; how to fabricate pipe on a jig.

Rigging—Rigid and Swinging Staging. (17 min) 16sd. Purchase: Castle.

• Follows entire procedure of setting up rigid staging, including use of A-frame stage and extension, double boards overlapped and life-line; how to rig swinging staging and take it down and stow it. (Shipbuilding Skills Series).

Rigging Blocks. (10 min) 16sd. Purchase: Castle.

• Reeving single whip, runner, luff-tackle and twofold purchase, in each case pointing out principles of mechanical advantage, friction, and relation of effort to weight, including direction of effort. (Shipbuilding Skills Series).

Rigging Slinging Load. (7 min) 16sd. Purchase: Castle.

• How to rig swinging staging, using single width boards and life-lines. (Shipbuilding Skills Series).

SHIPFITTING

MOTION PICTURES

Bulkhead: Laying Off & Fitting a Centerline Stiffener. (16 min) 16sd-$27.88. USOE-Castle. OE31.

Shows how to lay off and set a center T-bar stiffener to a watertight bulkhead. Emphasizes advance planning of the work for the most economical cutting of the T-bar stiffener and tipping bracket from an I-beam, laying off of stiffener and brackets from templates, and the necessity for constant checking with the blueprint. Shows how to cut a T-bar stiffener tripping bracket from an I-beam, how to back mark and mark the 4-, 8-, 12-, 16-, 20-, and 24-foot water lines on the T-bar stiffener; how to fit the tripping bracket to the end of the main bracket; how to tackweld the stiffener to the bulkhead ready for production welding.

Bulkhead: Setting a Transverse Watertight Bulkhead Into Hull. (17 min) 16sd-$29.29. USOE-Castle. OE32.

Shows how to strike and mark lines and lower the bulkhead into the hull; how to use ribbands to keep the bulkhead fair during this process; and how the bulkhead is moved to get exact alignment of the lines on the bulkhead with those previously marked off on the hull.

Deck Girders: Sub-Assembly. (15 min) 16sd-$26.43. USOE-Castle. OE28.

Emphasizes the necessity for proper understanding and correct reading of the blueprint. Explains the purpose of deck girders and shows where they are located. Shows how a transverse deck girder is made from a split T-bar with a filler bracket in the web of the split end and how to guide the filler bracket into perfect alignment for tack welding using a dog.

Deck, The: Setting a Web Frame & a Transverse Beam. (17 min) 16sd-$29.29. USOE-Castle. OE29.

Shows how to lay off center lines, frame lines, and buttock lines on the deck of a ship, how to fit and set the horn girder, and how to shift the girder. Explains the location of web frames and deck beams and illustrates camber. Shows the parts of the web frame that support this deck beam and the various holes that have been cut in each. Shows how to strike the center line and check the resulting squares by the 6-8-10 system, and how to center a deck beam.

Deckplates: Regulating & Setting. (16 min) 16sd-$27.88. USOE-Castle. OE33

Shows the setting, fairing, regulating and fitting of the deck plates of a ship. Animation shows how plates are placed in strakes outboard from the center line and the location of each strake of plates with exact reference to the center or buttock line marked on the ship and on the plate. Shows how deck plates are drawn into position for welding using steamboat jacks, ratchet and angle bar clips, and bolts; the purpose of the root opening; the use of liner wedges, dogs and flat bar fairing strips to provide flush joints for welding and the use of the strongback to strengthen a plate bent during welding.

Innerbottom Section: Sub-Assembly of a Closed Floor: Sub-Assembly of an Open Floor. (18 min) 16sd-$30.01. USOE-Castle. OE25.

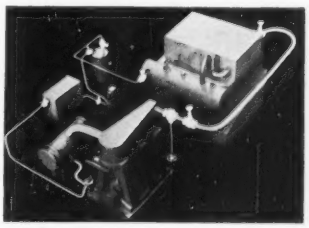
Shows purposes of vertical keel, flat keel, keelson, floors, stiffener, baffle plate and universal mold; the laying off of closed floor from a template; locating and fitting a vertical stiffener, a flat bar ring for lightening hole and a face plate; types of punch marks used and their significance; and locating, setting, and fitting a T-bar stiffener and tack welding it in position.

Innerbottom: Setting Up Floors & Longitudinals. (18 min) 16sd-$30.01. USOE-Castle. OE26.

Shows how to set and fit a transverse watertight floor in an innerbottom section. Explains keel, longitudinal side girders, floors, fairing, and declivity. Shows how to check the declivity angle, how to use wedges and spur shores, and how to use bar and turn buckles to align the keel. Shows setting, fitting and fairing of a transverse watertight floor.

Laying Off the Boundary, Stiffeners, Water Lines & Buttock Lines. (18 min) 16sd-$30.01. USOE-Castle. OE30.

Shows how to locate the center line of a ship;



Installing Valves in Engine Room Systems

how to strike and check water and buttock lines; how to fasten templates with mold loft clamps and dog them down, mark them with soap stone, trim excess metal, and center punch marks to guide the burner. Shows how to locate stiffeners using templates; how to use dogs and wedges in flattening a bulged portion of the bulkhead to secure a flat fit of a T-bar stiffener; and how to chip a weld to secure a close fit for a stiffener.

Mass Production of Massive Parts. (25 min) 16sd-color. Metal & Thermit.

Relates to the building of stern frames for ships. Commentary makes frequent mention of the fact that same methods are applicable for the fabrication of any massive weldment. Introductory and closing sequences show locomotives, excavating equipment, and heavy presses in action.

Preparing & Setting a Keel Block & Bottom Cradle. (18 min) 16sd-$30.01. USOE-Castle. OE24.

Explains the basic lines used in ship construction—base line, center line, water line, buttock line, frame lines; defines declivity angle, port and starboard, athwart-ships, and fore and aft; demonstrates the setting of the keel block to the center line and proper declivity angle and the marking off and setting of a spaul from a template mold. Shows the relationship of the keel track and bottom cradle to the ship and the use of the declivity board and spirit level in the construction of the keel track and setting of the keel block.

Side Frames: Sub-Assembly of a Web Frame. (17 min) 16sd-$29.29. USOE-Castle. OE27.

Explains the role of side frames in holding a ship in shape. Shows how templates are reversed in laying off pairs of frames and the use of web frames to counteract unusual pressure and strain. Shows how to place a template on a steel plate, scribe and punch the lines on the steel plate, locate stiffeners, mark water and buttock lines, and locate and punch mark lightening holes, stringer cutouts, and pipe openings.

Shipways. (40 min) 16sd-free. Bethlehem.

Advances in art of shipbuilding from days of clipper ships; the building of a victory ship, from drawing board to trial run; repairing and reconditioning certain types of vessels.

MISCELLANEOUS

S L I D E F I L M S

Bowline, The. 35si. Free loan: USN.

• Bending bowline, demonstrated from point of view of person forming a bend.

Square the Knot. 35si. Free loan: USN.

• Bending square knot demonstrated from point of view of person forming the knot.

Wheatstone Bridge. 35si. Free loan: USN.

• Compares functions of Wheatstone Bridge with water pipe system.

Welding, Soldering and Flame Cutting

M O T I O N P I C T U R E S

Advanced Welding Techniques. (10 min) 16sd-color. Free loan: Westinghouse.

• Importance of using correct electrode for specified welding job; best welding positions for light and medium gage steel and heavy plate. Available May 1, 1951.

Advantages of AC Welding. (19 min) 16sd-color. Free loan: Westinghouse.

• Welder shows AC equipment at work on mild steel, cast iron, stainless steel and alloy steels.

Advantages of AC Welding (Condensed Version). (10 min) 16sd-color. Free loan: Westinghouse.

• AC equipment for speedy and easy welding of mild steel, cast iron, stainless steel and alloy steels.

Applications of RF Induction Heating. (15 min) 16sd-color. Free loan: Westinghouse.

• Advantages of RF process to through-heat, harden, anneal, solder or braze metals, application in making wrist pins and other metal assemblies.

Arc Welding. (10 min) 16sd. Aluminum Co.

Metal arc, carbon arc, and atomic hydrogen processes for welding aluminum are discussed in detail with particular emphasis on correct welding techniques.

Arc Welding at Work. (30 min) 16sd. Color. Loan: General Electric.

• Wide application of electric arc welding and many ways it can increase production and cut costs.

Arc Welding Stainless Steel. (20 min) 16sd-color. Allegheny Ludlum.

Describes the metallic arc process for welding of chromium nickel stainless steel.

Automatic Machine Cutting With the Oxweld Type CM-12 Shape Cutting Machine. (25 min) 16si. Linde.

The operating principles of machine flame-cutting are shown; the automatic cutting machine is used in the production of metal parts.

Brazing Carbide Tools. (18 min) 16sd-$30.01. USOE-Castle. OE241.

Shows the characteristics of carbide tools, the preparation and brazing of carbide tools with silver solder, making a sandwich braze, and brazing by other methods.

Burning—the Safe Way. (28 min) 16sd. Rent: National Safety.

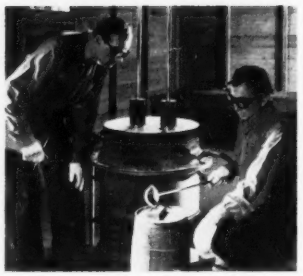
• Precautions every burner should take to protect himself and his co-workers, emphasizing importance of safe dress, use of safety equipment and observances of safe work methods.

Butt and Lap Welding Merchant Pipe. (30 min) 16si. Loan: Jones & Laughlin.

• Skelp hot rolling, magnetic rolls, welding, galvanizing, threading and bundling.

Contact Welding. sd. color. A T & T.

Describes component parts of a welding kit and its accessories, including the apron, stripping pliers, replacing bar contacts, tweezers, aloxite cloth and orange sticks, and the welding pliers with the electrodes and guides. Shows step-by-step operations in using the tool.



Cutting & Shaping Steel With the Oxweld Cutting Machine Type CM-15. (20 min) 16si. Linde.

Shows uses of the Type CM-15 cutting machine—including preparation of internal dies, rimming dies, gear blanks, large hexagonal nuts, crane hooks, transformer tops, and gear sections for rocker arms. The CM-15 shown doing straight line cutting, bevel-cutting, circle cutting, cutting from a templet, and hand-tracing. Each operation is carried through from the arrangement of the material to the finish of the cut.

Design for Arc Welded Structures. (15 min) 16sd-color. Free loan: Lincoln Electric.

Shows advantages that can be gained by welding building materials for strong structure. Animated drawings are used to illustrate the fundamentals of structural design.

Designing Machinery for Arc Welding. (15 min) 16sd-color. Free loan: Lincoln Electric.

Reviews fundamentals of welded design, telling story of the process. Shows how welded design permits wider scope for planning, fabrication, and erection. Illustrates beams, compression members, and tension members.

Flame Cutting of Billets & Bars. (16 min) 16si. Linde.

Shows oxy-acetylene cut-off equipment used for cutting round and square bars in end squaring, cutting to shipping lengths, and dividing long sections into forging blanks, techniques and equipment for hot-cutting of billets and for room-temperature billets.

Forge Welding. (12 min) 16sd. Purchase: USOE; Castle.

• Explains maintenance of a fire, how to make various kinds of welds and how to upset and scarf round stock.

Guided Bend Test, The. (17 min) 16sd-$29.29. USOE-Castle. OE189.

Shows how to prepare groove weld and fillet weld test specimens for the guided bend test; how to make the test; causes of failure in bending.

Hand Soldering. (20 min) 16sd-$32.16. USOE-Castle. OE479.

Explains the theory of soldering and shows how to prepare soldering irons and torches; how to clean and prepare the work; how to fasten the joints; how to solder wire and lug joints; how to seal seams.

High Frequency Soldering. (17 min) 16sd-$29.29. USOE-Castle. OE480.

Shows the theory of high frequency heating; how to select a work coil and leads; how to adjust the work coil to the work; how to tune

a converter; how to prepare the workpiece; how to determine and adjust correct soldering time and temperature; and how to use an automatic timer.

How to Weld Aluminum—Arc Welding. (10 min) 16sd. Free loan: Bur Mines.

• Metal arc, carbon arc and atomic hydrogen processes for welding aluminum.

How to Weld Aluminum—Torch Welding. (17 min) 16sd. Free loan: Bur Mines.

• Preparation of welding surfaces and examples of torch welding of aluminum forgings, castings, sheet and plate detail.

Inside of Arc Welding. (6 reels-10 min each) 1942. 16sd-color. GE.

Illustrates the technique of arc welding: 1. Fundamentals; 2. Flat Position; 3. Horizontal Position; 4. Alternating Currents; 5. Vertical Position; 6. Overhead Position.

Inside of Atomic-Hydrogen Arc Welding. (20 min) 1943. 16sd. GE.

Part I: Fundamentals of atomic-hydrogen welding: shows regulating the welding current and the hydrogen supply; how to adjust the electrode holder and the tungsten electrodes; how to recognize proper and improper adjustment. Part II: Techniques for making corner, edge and fillet and groove welds; controlling the molten pool; proper penetration; good fusion and uniformity.

Introduction to Oxyacetylene Welding. (20 min) 1942. 16sd. Jam Handy.

Shows methods to get proper flame; holding torch and welding rod; finishing job and putting away tools.

It's A Honey. (10 min) 16sd-color. Free loan: Westinghouse.

• Performance of new Westinghouse DC welder; selenium cell rectifier, movable core reactor, three-phase transformer. Available May 1, 1951.

Magic Wand of Industry, The-Arc Welding. (25 min) 1944. 16sd-color. Lincoln in cooperation with USBM.

A story of arc welding. Describes what the process is, why and where it is used in industry throughout the world.

Manual Cutting a Bevel—Freehand. (13 min) 16sd-$23.60. USOE-Castle. OE187.

Shows how to select a tip for bevel cutting; how to clean a tip; how to adjust oxygen and acetylene pressure for bevel cutting; how to cut a bevel with minimum drag; and how to handle and operate the cutting equipment safely.

Manual Cutting a Shape—Free Hand Guided. (16 min) 16sd-$27.88. USOE-Castle. OE188.

Shows how to make a plywood template for cutting; how to make a tip guide device; how to position a template for cutting; how to use the guide device; how to use a circle cutting device.

Manual Cutting to a Line—Free Hand. (21 min) 16sd-$32.87. USOE-Castle. OE186.

Shows how to assemble an oxyacetylene cutting outfit; how to select the proper cutting tip; how to adjust oxygen and acetylene delivery pressures; how to adjust the preheating cutting flames; how to make a 90 degree free hand cut; and how to disassemble the cutting outfit. Safety measures are emphasized and demonstrated.

Metal Miracles. (10 min) 16sd-color. Free loan: Westinghouse.

• Electric furnace brazing for high production, maximum economy, joint with strength of parent metal, many applications, new approach to parts design.

Modern Metalworking With the Oxyacetylene Flame. (30 min) 1937. 16si-loan. Linde in cooperation with USBM.

Part I: Production of oxyacetylene flame; chemical action of water and calcium carbide. Animation shows construction and operation of equipment. Part II: Uses of oxyacetylene welding.

New Horizons in Welding. (30 min) 16sd-free. Harnischfeger.

The modern set-up for production welding—the testing laboratories, the preparation of templates, and the actual welding processes.

No Keener Blade. (25 min) 16sd-color. Can-Liquid.

Shows modern application of the oxyacetylene cutting processes in industry. Stresses their use in Canada during the recent war, and includes a short historical flashback to the discovery of oxygen in 1774.

Oxwelding & Cutting. (15 min) 16si. Linde.

Cross section views and animation illustrate principles of oxyacetylene process used in cutting metals and welding; construction and operating principles of oxygen cylinders; acetylene cylinders, oxygen and welding regulators, and blowpipes for cutting.

Oxwelding & Cutting in Production. (15 min) 16si. Linde.

Presents a brief survey of uses of the oxyacetylene flame welding: pressure vessels, condensor heads, cooler and metal furniture. Hand-cutting applications include removal of gates and risers, and cutting of forging blanks. Machine cutting applications: trimming of blooms, various shape cutting operations on single and stacked plates; multiple flow-pipe-shape-cutting; portable and stationary types of cutting machines.

Oxwelding For Profit. (15 min) 16si. Linde.

The application of oxyacetylene process in industrial fields: the hard-facing of wearing parts; the welding of automobile bodies, and airplane fuselages; installations of welded pipe in buildings; oxyacetylene cutting as a means of demolition.

Oxy-Acetylene Flame-Master of Metals, The. Free loan: Bur Mines.

• Oxy-acetylene welding and cutting processes; how they are used to cut risers on castings, produce welded aluminum chair frames and prepare H- and I-beams for heavy steel construction; how calcium carbide and acetylene are produced; workings of welding torches, cutting torches, and oxygen and acetylene regulators. Sponsored by International Acetylene Association.

Oxy-Acetylene Welding in Industrial Production. (15 min) 16si. Linde.

Production applications of oxyacetylene welding; use of jigs shown.

Oxy-Acetylene Welding Light Metal. (21 min) 16sd-$32.87. USOE-Castle. OE190.

Shows how to assemble a gas welding outfit; how to adjust gas pressures; how to adjust the flame; and how to make a butt weld and T weld in light tubing.

Preheating Welding & Stress Relieving. (15 min) 16si. Electric Arc.

Portrays the relative effects of heating, over heating, quenching and slow cooling as applied to stress relieving in welding of prefabricated parts.

Prevention & Control of Distortion in Arc Welding, The. (20 min) 1945. 16sd-color. Lincoln.

In any arc welding operation, the heat effect of the arc and molten metal has a tendency to warp or distort the plates being welded. Principles and rules to prevent this are demonstrated. A Walt Disney production under supervision of Lincoln engineers.

R-F Induction Heating. (10 min) 16sd. Free loan: Westinghouse.

• On-the-job demonstration; precise depth control, increased speed of processing, economy of operation.

Radio-Frequency Heating. (40 min) 16sd-color. Free loan: Westinghouse.

• First explains theory of induction-heating, then shows practical uses for soldering, brazing, annealing, hardening.

Resistance Welding. (12 min) 16sd. Aluminum Co.

By means of animation, the principles of two types of spot-welding machines are explained. The carbon electrodes and their adjustment are described, as is the preparation of the work. Test samples showing correct and incorrect welds are depicted and analyzed.

Sequence Planning. (23 min) 16sd. Loan: U.S. Navy.

• Importance of sequence welding in avoiding stresses due to expansion of metal when heated; importance of overall planning in construction of welded structures.

Split-Second Fastening. (18 min) 16sd-color. Free loan: Nelson Stud Welding.

• Advantages of stud welding and cost-saving applications in construction and metal-working industries; automotive, railroad, shipbuilding, electrical, heating equipment, steel and others.

Spot Welding. (20 min) 16sd-$32.16. USOE-Castle. OE 295

Shows how to spot weld parts of an access cover, including setting up the machine, removing and installing electrodes, setting pressure, current, and time controls, testing the set-up, and cleaning the electrode tips.

Story of A-C Welding. (35 min) 1944. 16sd-color-loan. GE.

Shows the speed, flexibility and efficiency of A-C welding process on all types of joints.

Story of Arc Welding. (25 min) 1944. 16sd-color. USBM.

Shows steps in arc welding.

Inside of Arc Welding

This Is Resistance Welding. (25 min) 16sd-color. GE.

Fundamental types of resistance welding are described: spot, seam, and projection. Stresses importance of electronics in controlling timing and the magnitude of the welding current.

Torch Welding. (17 min) 16sd. Aluminum Co.

Describes the progressive steps necessary to make a good torch weld, including the preparation of the welding surface, the flux mixture, and the manipulation of the torch.

Unionmelt Welding—An Electric Welding Process. (15 min) 16si. Linde.

Animated diagrams show principles and applications of Unionmelt welding, its mechanical details.

Unionmelt Welding in Industry. (15 min) 16si. Linde.

Shows Unionmelt welding equipment in the fabrication of pressure vessels and pipe, stressing speed, economy and simplicity of process.

Unionmelt Welding in Industry—General Applications. (15 min) 16si. Linde.

Shows process used in construction of transformer tanks, galvanizing kettles, and railroad equipment.

Welding. (11 min) 16sd. U of Ill.

Shows three types of flames, how to secure them, the correct way to hold the torch.

Welding Comes to the Farm. (24 min) 16sd. Free loan: Lincoln Electric.

• Demonstration of use of arc welding in repairing, reclaiming and building equipment.

Welding Operator. (11 min) 1942. 16sd-$50. Voca Guidance.

Use of oxyacetylene equipment; resistance welding; arc welding; typical jobs.

Welding—the Safe Way. (18 min) 16sd. Rental: Nat. Safety.

• Produced by Bethlehem Steel, film covers fundamentals of safety in welding operations and stresses unnecessary delays accidents cause.

Welding Techniques—Electric Arc Welding. (14 min) 16si. Color. Rent: Harmon.

• Primary methods of electric arc welding indicating important place welding has in modern life.

Welding Techniques—Oxyacetylene Welding. (20 min) 16si. Color. Rent: Harmon.

• Techniques of welding for the beginner. Visual definition of welding, equipment use and operation.

SLIDE FILMS

Filmstrips on Electric Welding. (9 films) SVE.

1. Arc Welded Construction; 2. Brief Discussion of the Shielded Arc; 3. The Shielded Arc Process; 4. Greater Profits in Manufacturing by Redesign; 5. Better Builds and Structures at Lower Cost by Electric Welding; 6. Building Better Pipe Lines Faster and at Less Cost; 7. Surfacing by Electric Welding; 8. Automotive Arc Welding by the Electronic Tornado; 9. Safety and Health in Arc Welding.

Fire Prevention & Other Precautions in Welding & Cutting. Linde.

Safety techniques in the use of oxy-acetylene welding and cutting processes.

Let's Get the Low-Down. (15 min) 35sd. slidefilm. Loan: Welding Equipment.

• Need for tool steel welding in the plant.

Oxyacetylene Welding. (5 kits, 15 films) si. Purchase: Jam Handy.

• Designed to help those learning to perform the manual skills required for welding operations. Titles of films in each kit and total frames:

Kit A: 1. An Introduction to Welding (68); 2. Setting Up and Lighting the Welding Torch (58).

Kit B: 1. Welding Flat Ripples (31); 2. Flat Butt Welds (45).

Kit C: 1. Fillet Welds—Steel (75); 2. Vertical Welds—Steel (38); 3. Tube Welds—Steel (71); 4. Cluster Welds (30); 5. Welding Stainless Steel (34).

Kit D: 1. Welding Aluminum Flat Sheets (64); Welding Aluminum Tubes with Sheets (49); 3. Fuel and Oil Tank Repairs (29).

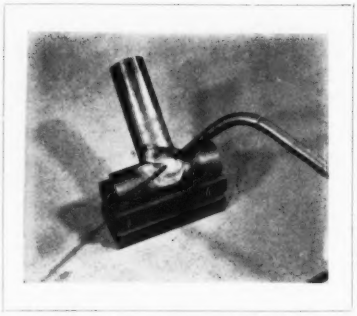
Kit E: 1. Oxyacetylene Cutting (34); 2. Brazing and Silver Soldering (49); Qualification Test for Welders (67).

Resistance Welding Control Course. (Seven parts, 70 min) 35sd. Purchase: Westinghouse.

• After describing and differentiating between various welding processes, course proceeds to exposition of resistance welding and widened application by electronic control. Titles: 1. Basic Definitions of Welding Technology; 2. Types of Resistance Welding; 3. The Ignitron and the Thyratron; 4. How the Flow of Resistance Welding Current Is Started and Stopped; 5. How the Amount of Resistance Welding Current is Controlled; 6. Electronic Timing Controls in Resistance Welding; 7. Energy-Storage Control. Student's booklet with each lesson; instructor's manual.

Qualification Test for Welders. 35si. filmstrip. Purchase: Jam Handy; Kunz.

• Test welds: single V-butt, tubular butt, vertical



Oxyacetylene Welding Light Metal

fillet, combination sheet and tube, horizontal fillet and various checks and tests.

Safe Handling of Oxygen & Acetylene Cylinders & Apparatus. Linde.

Safety techniques in the use of oxy-acetylene welding and cutting processes.

Structural Steel Workers. $2. SVE.

Welders—to Your Health. (25 min) 35sd. Free loan: National Safety.

• Types of portable ventilation applicable to shipyard construction jobs. Covers both actual and imagined health hazards of welding. Deals with electric welding of carbon steel only, not alloys.

Welding as an Occupation. $2. SVE.

Wood & Lumber Industry

PATTERN MAKING

MOTION PICTURES

Designing a Pattern for a Water-Cooled Motor Block. (15 min) 16sd-$26.43. USOE-Castle. OE337.

How a patternmaker designs a complicated pattern and core boxes; how he can combine study of a drawing with the making of a layout to help in designing; how a complicated design can be broken down into smaller elements for detail study; how production requirements must be considered.

Designing Core Boxes For a Water-Cooled Motor Block. (12 min) 16sd-$22.88. USOE-Castle. OE338.

How a patternmaker designs complicated core boxes; how a patternmaker can combine study of a drawing with the making of a layout to help in designing; how a complicated design can be broken down into smaller elements for detailed study; how machining and molding requirements must be considered.

Making a Core Box For a Flanged Pipe Elbow. (21 min) 16sd-$32.87. USOE-Castle. OE330.

Shows how to use pattern layout in making a core box; how to design a core box; how to lay out a curved core piece; how to turn the core cavity in a curved piece; how to use a reverse template; how to assemble a core box having a curved core piece; how to finish the core box.

Making a Core Box for a Machine Base. (13 min) 16sd-$30.74. USOE-Castle. OE334.

How a patternmaker, working from a casting, goes about the job of designing a core box; how to design and construct two core boxes in which mating cores are to be made; how to design and construct large core boxes with loose pieces; how to design and construct a small, half core box with interchangeable loose pieces.

Making a Core Box for a Tail Print. (18 min) 16sd-$30.01. USOE-Castle. OE350.

Shows how to use dry sand cores in molding holes in castings; how to use pattern layout to make a core box; how to distinguish between core and core print; how to lay out the core print; how to add the core; how to determine parting line of a core box.

Making a Core Box for a Vertical Core. (19 min) 16sd-$31.44. USOE-Castle. OE329.

Shows how to make sand cores; the function of the sand core; how to make a half box; how to use parted boxes; how to use layout pattern in making a core box; how to prepare core box pieces; how to assemble a core box.

Making a Master Pattern & Core Boxes for a Water-Cooled Motor Block. (15 min) 16sd-$27.15. USOE-Castle. OE339.

How careful design results in a practical pattern and core boxes; how each step of construction is checked; how a final check can be made with test cores and a sample casting; how these cores are pasted up and assembled.

Making a Matchboard Pattern. (21 min) 16sd-$32.87. USOE-Castle. OE328.

Shows how to sketch a matchboard; how to prepare the board; how to make the patterns; how to make a matchboard layout; how to prepare gates to connect patterns; how to prepare the runner for the cope side; how to assemble the matchboard; how to turn a draft taper on a hole; how to attach flask fixtures.

Making a One-Piece Flat Pattern. (22 min) 16sd-$33.60. USOE-Castle. OE321.

Shows how to identify the parts of the molding flask; how to use shrinkage rules; how to prepare a pattern layout; how to prepare the pieces that make up a pattern; how to make identical castings; how to finish patterns.

Making a Pattern for a Flanged Pipe Elbow. (18 min) 16sd-$30.01. USOE-Castle. OE327.

Shows how to make a right angle layout; how to make a 90 degree, horizontally parted round body; how to turn out separate core prints; how to make split flanges; how to set flanges into core prints; how to assemble half the pattern on the layout; how to dowel an elbow pattern; how to apply fillets.

Making a Pattern for a Machine Molded Steel Globe & Angle Valve. (14 min) 16sd-$25.71. USOE-Castle. OE340.

Shows how machine molding affects pattern design; how this particular pattern is designed, constructed, and mounted on inserts; how casting in steel affects pattern design; how the gating system for this particular pattern is designed and built for casting in steel.

Making a Pattern for a Three-Part Mold. (20 min) 16sd-$32.16. USOE-Castle. OE326.

Explains the reasons for the three part pattern; shows how to make the layout; how to segment the body or center section; how to eliminate end grain on large flanges; how to turn large work on the end of the lathe.

Making a Pattern Requiring a Cover Core. (14 min) 16sd-$25.71. USOE-Castle. OE332.

Shows how consideration of the molding and coring problems leads to the choice of a cover core; how a patternmaker designs a pattern (and core boxes), requiring a cover core; how a patternmaker designs a cover print; how a patternmaker constructs this particular pattern and its core boxes.

Making a Pattern Requiring Box Construction. (17 min) 16sd-$28.58. USOE-Castle. OE333.

Shows how a patternmaker approaches the task of making a pattern from a casting; how a casting is measured to get pattern dimensions; how a pattern to be made of box construction is designed and why box construction is used; how this particular pattern is made by box construction.

Making a Pattern Requiring Segmental Construction. (13 min) 16sd-$23.60. USOE-Castle. OE335.

Shows how and why segmental construction is a preferred method for some patterns; how a patternmaker designs a pattern requiring segmental construction; how a patternmaker constructs this particular pattern.

Making a Pattern Using a Green & a Dry Sand Core. (14 min) 16sd-$25.71. USOE-Castle. OE331.

Shows how a green sand core is molded; how a patternmaker determines when to allow for a green sand core; how a patternmaker designs a pattern allowing for a green sand core; and how a patternmaker visualizes and constructs this particular pattern.

Making a Pattern With a Horizontal Core. (14 min) 16sd-$25.71. USOE-Castle. OE323.

Shows when to use a horizontal core; how to allow for shrinkage in bronze; how to lay out fillets; how to make horizontal core prints; how to true up a parting plane; how to dowel a pattern with a horizontal core; how to turn crusher strips.

Making a Pattern With a Tail Print. (19 min) 16sd-$31.44. USOE-Castle. OE324.

Shows how to mold castings with holes; how to make a rough sketch for visualizing the actual casting; how to use dry sand cores; how to form core cavities by using tail prints; how to make a layout including tail prints.

Making a Pattern With a Vertical Core. (14 min) 16sd-$25.71. USOE-Castle. OE322.

Explains the importance of making a preliminary sketch; shows how to make the layout; how to allow for shrinkage; how to allow for finish; how to lay out the core prints; how to use the layout; how to assemble the pattern; how to allow for draft; how to shellac the pattern.

Making a Segmented Pattern. (22 min) 16sd-$33.60. USOE-Castle. OE325.

Shows how to plan segmentation of pattern; how to lay out segments and web; how to assemble the pattern; how to prepare a recessed hub; how to finish the pattern.

Redesigning a Pattern for Production Purposes. (11 min) 16sd-$21.44. USOE-Castle. OE336.

Shows how this pattern, as originally designed, is molded and why it is not practical for quantity production; how the pattern can be redesigned to meet quantity production requirements.

SLIDE FILMS

Pattern Making. $2. SVE.

WOOD FINISHING

MOTION PICTURES

American Walnut. (22 min) 16sd-color. Free loan; American Walnut.

The manufacture of solid and veneer construction; the making of plywood, and how figured paneled surfaces are produced.

Faces and Figures. (28 min) 16sd-color. Free loan: Veneer.

• Story of hardwood veneer and hardwood plywood, from felling of tree through manufacture of veneer, assembly into hardwood plywood, and wide variety of uses.

Furniture Craftsmen. (11 min) 16sd-$50. EBFilms.

Story of custom built furniture: roles of designer and skilled craftsmen described. Processes included: pattern making, laying out, band sawing, power planing, joining, lathe turning, grooving, gluing, carving, finishing of furniture.

Furniture Making. (15 min) 1929. 16si. EBFilms.

Furniture making from beginning to end: drafting; models, hand carving; machine production: multiple carving machine, spindle carver, the jig, sander, belt sander, automatic lathe, automatic turning sander, air router, saws; finishing and assembling, painting and upholstering.

How to Finish Plywood. (22 min) 1942. 16sd-color. Douglas Fir.

Finishing of plywood; painting, staining, enameling, to create proper exterior and interior finishes.

Mahogany, Wood of the Ages. 16mm color or B & W. Free loan: Bray.

• Story of time-honored member of construction materials family.

Masterpieces of Mahogany. (30 min) 16si-loan. Mahogany.

From the beginning as a piece of rough solid mahogany lumber through the design and scaled shop drawings, a table is produced as the camera follows the step by step process: the dry kiln, the saws; the turning lathes, the carving, and sanding machines, the finishing steps—staining, filling, glazing, finishing coats, sanding, waxing, and polishing.

Miracle in Wood. (35 min) 16sd-color. Douglas Fir.

The making of plywood; the giant peeler logs; blocks peeled into veneer and veneer into plywood.

Plywood Fleet. (34 min) 1942. 16sd-color. Douglas Fir.

Building small boats: sail boats, power boats, speed boats, and racing shells.

Prefabrication with Plywood. (35 min) 1942. 16sd-color. Douglas Fir.

Shows factory prefabrication with a survey of the prefabrication industry.

Redwood Saga. (14 min) 16si. Haselton.

Redwood lumber industry of northern California, the cutting, loading, transportation, mill sawing and finishing operations.

Romance of Mahogany. (45 min) 1937. 16si. Mahogany.

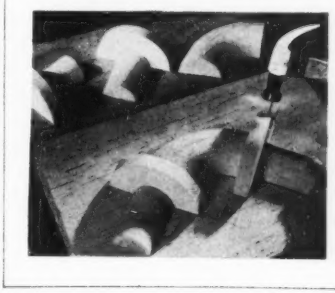
The making of mahogany lumber and veneers from the felling of trees in the tropical jungles to the factory.

Southern Hardwoods—Yours Forever, The. 16sd-color. Free loan: Bray.

• Among South's contributions to building trades.

Trees & Homes. (33 min) 16sd-color. Modern.

The Weyerhauser plant in Washington shown in logging and mill operations.



Making a Pattern for a Flanged Pipe Elbow

WOOD WORKING

MOTION PICTURES

Beveling, Mitering, Rabbeting, & Dadoing. (19 min) 16sd-$30.74. USOE-Castle. OE307.

Shows how to cut a bevel with tilted fence; how to cut a bevel with tilted blade; how to set a miter gage; how to use a stopblock in mitering; how to set the fence and blade for cutting rabbets; how to install and use a dado head.

Beveling Stop Chamfering, & Tapering Square Stock. (20 min) 16sd-$32.16. USOE-Castle. OE303.

Shows how to set fence for bevel cutting; how to adjust the proper amount of cut; how to cut chamfer; how to set the infeed and outfeed tables for stop chamfer; how to set stop blocks; how to cut tapers; how to observe all proper safety precautions.

Chisels. (12 min) 1943. 16sd. Purchase: Proto. Use and care of chisels.

Cutting Cove Molding & Corebox. (19 min) 16sd-$31.44. USOE-Castle. OE311.

Shows how to select stock for cove molding; how to mark the stock; how to cut and rip cove molding; how to set up equipment and make progressive adjustments in oblique cutting; how to select the proper blade for oblique cutting; how to cut a deep hollow.

Cutting Grooves With Circular Saw Blades. (22 min) 16sd-$33.60. USOE-Castle. OE320.

Shows how to set up the machine to cut grooves; how to cut grooves in stiles and rails; how to cut grooves for splines; how to cut stop channels in mirror frame members.

Cutting Tenons & Segments. (15 min) 16sd-$26.43. USOE-Castle. OE308.

Shows how to lay out and cut a tenon; how to set up the equipment to make shoulder cuts; how to set up the equipment to make first and second cheek cuts; how to prepare a jig to trim and miter segments.

Essentials of Wood Turning. (15 min) 16si-$24; rent-$1. (10 min) 16sd-$36; rent-$1.50. B & H

Shows the operation of the simple wood lathe; the scraping method; and usefulness of woodworking machinery.

Face Planing Uneven Surfaces. (13 min) 16sd-$23.60. USOE-Castle. OE304.

Shows how to surface wide stock on one side; how to use a pusher; how to make and use a feather board; how to use a backing block for facing thin stock.

Face Turning a Collar

Face Turning a Collar. (16 min) 16 sd-$27.88. USOE-Castle. OE317.

Shows how to prepare a faceplate chuck; how to attach work to faceplate chuck; how to turn a fillet; how to taper turn a recess.

Hammers. (11 min) 1943. 16sd. Purchase: Proto.

Shows types of hammers and correct ways of handling them.

Hand Sawing. (20 min) 1943. 16sd. Jam Handy.

Shows fundamentals of handling hand saws; methods of choosing right saw for the job. Coping saw uses demonstrated.

Jointing an Edge for Gluing — Installing Knives. (21 min) 16sd-$32.87. USOE-Castle. OE305.

Shows how to determine when knives are dull; how to remove dull knives; how to install sharp knives on the cutter head and adjust them for proper cutting; how to straighten crooked stock; and how to joint edges for gluing.

Jointing Edges & End Grain 90 Degrees to a Face. (17 min) 16sd-$29.29. USOE-Castle. OE302.

Shows how to set the fence and infeed table to proper height; how to feed with the grain; how to joint end grain so as to prevent tearing; and how to observe all necessary safety precautions.

Planing Rough Surfaces to Dimensions. (17 min) 16sd-$29.29. USOE-Castle. OE301.

Shows how to adjust the table for desired thickness; how to set feed rolls for proper speed; how to feed with the grain; and how to surface short pieces and glued stock.

Rabbeting & Shaping an Edge on Straight Stock. (18 min) 16sd-$30.01. USOE-Castle. OE318.

Shows the principles of shaper operation; how to set up the machine for cutting rabbets; how to cut rabbets; how to set up the machine to shape molding; how to shape a molding.

Ripping & Cross-Cutting. (19 min) 16sd-$30.74. USOE-Castle. OE306.

Shows how each working part of the variety saw functions; how to check saw blades; how to set the fence; how to protect one's self on the job; how to change saw blades; how to use a cutoff gage; how to use a hinged block in cross-cutting.

Sanding Flat & Irregular Surfaces. (19 min) 16sd-$30.74. USOE-Castle. OE312.

Shows how the belt sander operates; how to prepare a sanding belt; how to sand flat stock on a belt sander; how to sand curved molding on a belt sander; how to use and replace sandpaper on a spindle sander.

Sawing a Reverse Curve & a Bevel Reverse Curve. (18 min) 16sd-$30.01. USOE-Castle. OE310.

Shows how to select and lay out stock to avoid waste; how to reverse curves to contour lines; how to use the table tilting gage; how to saw a beveled, reverse curve; how to prepare a template for a newel post; how to saw a newel post having reverse curves.

Sawing With Jig & Changing Band. (20 min) 16sd-$32.16. USOE-Castle. OE309.

Shows how to select the proper band saw blades for the job; how to change blades; how to fold blades for storage; how to adjust saw guides; how to mark stock and cut to the mark; how to prepare a jig; how to cut discs using a jig.

Shaping After Template & Shaping Curved Edges. (17 min) 16sd-$29.29. USOE-Castle. OE319.

Shows how to make a template for a job; how to install knives in the spindle; how to use the template when smoothing squared edges; how to set up equipment for shaping a curved edge; how to shape a curved edge in more than one cut.

Turning a Cylinder Between Centers. (17 min) 16sd-$29.29. USOE-Castle. OE313.

Shows how to choose and center stock for a job; how to mount stock in the wood lathe for turning between centers; how to select the proper speed; how to select and use cutting tools; how to use the parting tool to establish diameter and length; how to use the skew chisel; how to sand turning work; the safety factors involved.

Turning Taper Work. (12 min) 16sd-$22.88. USOE-Castle. OE314.

Shows how to center cylindrical wood stock for spindle turning; how to make clearance cuts and why they are made; how to establish the diameters of a taper; how to turn a single taper; how to establish diameters for turning two tapers from a single piece of material; how to turn tapers.

Turning Work in a Chuck. (15 min) 16sd-$26.43. USOE-Castle. OE316.

Shows how to mount work on a face plate; how to turn one face of the work; how to make a chuck for the opposite face; how to fit the finished face to the chuck; how to turn the second face.

Turning Work on a Face Plate. (15 min) 16sd-$27.15. USOE-Castle. OE315.

Shows the various types of faceplates; how to choose the proper faceplate; how to attach the stock to the faceplate; how to true up the work; how to scribe the work for inside turning; how to use the roundnose chisel and diamond point chisel; how to smooth the bottom of the recess.

Woodworker. (11 min) 1940. 16sd-$50. Voca Guidance.

Carpentering, mill working, cabinet making, pattern making phases of woodworking industry.

SLIDE FILMS

Cabinet Making. $2. SVE.

Carpentry. $2. SVE.

Jig Saw. (76 pictures-96 frames) Jam Handy.

Introduction to the jig saw, names and functions of parts; safe practices for setting up a jig saw; safe practices for jig sawing.

Jointer. (62 pictures-83 frames) Jam Handy.

Introduction to the jointer, names and functions of parts; safe practices for setting up a jointer; safe practices for using a jointer.

Lathe: Faceplate Turning—Other Operations. (35 pictures-74 frames) Jam Handy.

Safe practices for setting up a lathe for faceplate turning; safe practices for faceplate turning; safe practices for sanding and polishing; safe practices for drilling.

Lathe: Parts—Spindle Turning. (74 pictures-86 frames) Jam Handy.

Introduction to the wood-turning lathe, kinds of wood-turning lathes, names and functions of parts; safe practices for setting up a lathe for spindle turning; safe practices for spindle turning.

Planer. (47 pictures-75 frames) Jam Handy.

Introduction to the planer, names and functions of parts; safe practices for setting up a planer; safe practices for using a planer.

Planes—Bits—Knives—Chisels—Screwdrivers—Files. (52 pictures-72 frames) Jam Handy.

Safe use of smooth, jack, and jointer planes; bits and drills; chisels, gouges, and carving tools; knives; selecting and using screwdrivers; safe use of files and wood rasps.

Woodworker's Tools. (36 frames) si. Purchase: Vis. Sci.

• 100 hand tools shown in detail.

Woodworking Series. Purchase: SVE.

• Series of four prepared cooperatively by SVE and the Charles A. Bennett Company to show correct usage and effective operation of hand and power tools in producing articles of wood. 1: Furniture Joinery (Based on "Furniture Joinery" by W. W. Klenke); 2: Making a Project with Hand Tools (Based on "Industrial Arts Woodworking" by J. S. Feirer); 3: Woodworking Machines (Based on "Industrial Arts Woodworking" by J. S. Feirer); 4: Safety "Know-How" in the Woodshop.

Woodworking Tools and Machines. (One kit, 14 films). Purchase: Jam Handy.

• Proper use of hand and power tools in the woodworking shop. Titles of films and number of pictures in each:
1. Hand Tools—Hammers—Saws (41); 2. Planes—Bits—Knives—Chisels—Screwdrivers (52); 3. Tool Grinder (46); 4. Drill Press (63); 5. Jig Saw (76); 6. Band Saw (79); 7. Disk Sander (31); 8. Belt Sander (62); 9. Lathe: Parts—Spindle Turning (74); 10. Lathe: Faceplate Turning—Other Operations (35); 11. Planer (47); 12. Jointer (62); 13. Circular Saw: Parts—Installing a Blade (74); 14. Circular Saw: Setting Up—Operating (40).

MISCELLANEOUS

MOTION PICTURES

California Redwood Lumber. (18 min) 16si-color. Denver.

Portrays the redwood lumber industry in California.

California Sugar Pine and Ponderosa Pine. (18 min) 16si-color. Denver.

Depicts lumbering operations leading to the manufacture of box shook (orange crates, etc.).

Come Up Logging. (30 min) 16sd-color. Free loan: Wells Survey, Inc.

• Use of extra-sensitive logging devices in locating new sources of oil underground, and rehabilitation of old wells to increase production.

Douglas Fir Plywood. (30 min) 16sd-color. Denver.

Logging operations and details of making plywood by both the cold and the hot press methods; uses of plywood.

Forestry and Forest Industries. (1 rl) 16sd. Voca Guidance.

Shows work of forest ranger, logger, lumberjack, lumber mill sawyer, trimmer, grader, and kiln-dryer. Illustrates what happens to a log from the time it is cut until the time it becomes a finished piece of lumber. Closing sequences depict related jobs, such as plywood manufacture, veneers, paper, and experimental laboratory.

Green Harvest. (29 min) 16sd. Free loan: Modern.

• Relationship between wild life and forestation; how forest fires are spotted and prevented; how insects and disease destroy trees; planning and selection for natural reforestation; mechanized handling of logs and lumber. Sponsored by Weyerhaeuser Lumber Company.

Oklahoma Forestry. (19 min). Loan: service charge 50c: U. of Okla.

• Importance of forestry in soil conservation; reforestation and farms; forest fire protection.

Science and Wood Utilization. (6 min) 16sd-color or B & W. Purchase: Coronet.

• Scientific methods of forest conservation.

Sempervirens. (30 min) 16sd-color. Free loan: California Redwood.

• How modern forestry works with nature to perpetuate supplies of redwood; milling and grading procedures in terms of intended uses of material.

Western Pine. (30 min) 16si-color. Denver.

Describes logging operations in the Ponderosa Pine forests of Oregon, including reforestation.

Films of Other Industries

ADVERTISING

MOTION PICTURES

Marks of Merit. (18 min) 16sd. Free loan: Modern.

• Oldtime Guild craftsmen's marking of their handicraft and today's parallel in use of brand names by manufacturers. Sponsored by Brand Names Foundation.

BELLOWS

MOTION PICTURES

Story of Metal Bellows, The. (30 min) Fulton.

The story of a little known but vital part of many products, from refrigerators to battleships; how they work and how they are made.

BRUSHES

MOTION PICTURES

From Bristles to Brushes. (30 min) 16sd. Fuller; Castle.

Sources of bristles, hair, wire, fibre and cotton are covered, as well as their careful processing after arrival and their utilization in most intricate operations.

BUILDING TRADES

MOTION PICTURES

American Colonial Shingle Picture. (17 min) 16sd-color. Free loan: Johns-Manville.

• Exposition of technique of application of American Colonial Shingles on old and new roofs, also examples of various types of houses on which they can be used.

Brick and Stone Mason. (12-15 min) 16sd. Free loan: Vocational Guidance.

• Prepared as aid in choosing a vocation, the film points out the potentialities of the brick-laying trade. Structural Clay.

Building America's Houses. (11 min) 16sd. EBFilms.

Discusses great expense that has become associated with building and how this expense can be minimized. Shows benefits that can be derived from such mass-production methods as prefabrication and site fabrication.

Doorway to Happiness. (30 min) 1942. 16sd-color. Fir Door Inst.

Logging; manufacture of doors and millwork; use and care in the homes.

Gypsum Lathing and Plastering. (18 min) 16sd-color. Free loan: Gypsum Assn.

• Installation procedures, from studs to decorations.

Gypsum Sheathing and Plastering. (15 min) 16sd-color. Free loan: Gypsum Assn.

• Installation procedures in applications of Gypsum Wallboard and Gypsum Sheathing.

Heat and Its Control. (40 min) 16sd. Free loan: Johns-Manville.

• Scenes showing uncontrolled heat as great destroyer are followed by exposition of how science has controlled heat and converted it into dynamos and generators; development of modern laboratory-tested insulation materials, with mining, manufacture and utilization of various types of insulation.

Home Builders at Work. (45 min) 1936. 16si-$32.50. Purinton.

The building of a home, from plans and blueprints to its occupation, with a depiction of the various trades involved in its construction.

House That Nobody Wanted, The. (35 min) 16sd. Free loan: Johns-Manville.

• Young couple offered drafty house as wedding gift is told by friend how structure can be made comfortable by insulation. Description explains cause of draft and loss of heat due to lack of insulation.

How to Build a House in 78 Minutes. (30 min) 1943. 16sd. Homasote.

Technical review of the fabrication and erection of 5000 Homasote homes in 5 months time, showing the precision-built system of construction.

Install It Right—with Marlita. 35sd-color. Free loan: Marsh.

• Procedure for installation of refinished panels for wainscot, full wall and ceiling treatments; discussion of wall preparation, tools and special application techniques.

Let's Talk about the Weather. (15 min) 35sd. Free loan: Chamberlin.

• Weatherproofing a home; where heat-losses otherwise occur.

Plumbing. (1 rl) 16sd. Voca Guidance.

Shows roughing in water pipes in walls and floors of building under construction; cutting pipes to proper lengths and threading them before putting in place; putting soil and vent pipes in place; sealing joints. Illustrates use of such tools as stilson wrench, threading equipment, packing tools, lead pots, and torches.

Quiet, Please! 16sd. Free loan: Celotex.

• Physics of sound, illustrated with animated d vings.

Roofs. (35 min) 1941. 16sd-color. Ruberoid.

History of the invention of asphalt, ready-to-lay roofing by the Ruberoid Company in 1892. Process of manufacturing asphalt shingles and roofings, demonstrations of asphalt roofing products.

Teco Trussed Rafters. 16sd. Free loan: Timber Engineering.

• Demonstration of simple and economical construction of Teco trussed rafters; engineering, planning and organization of large housing project.

Things You Should Know about Your Roof. (25 min) 16sd. Free loan: Johns-Manville.

• Demonstrates method of applying asbestos-built-up roof on new work and on reroofing, emphasizing fireproof, rot-proof and sun-resisting qualities.

Walls of Daylight. (25 min) 16sd-color. Free loan: American Structural.

• Manufacture of In-sulux Glass Block; physical characteristics and advantages.

We Decorate Our Home. (3 rls) 16sd-color. Hartley.

Shows ways to redecorate a typical home by using such materials as paint and glass. Suggests methods for cleaning and refinishing soiled woodwork. Shows how to place mirrors behind radiators to achieve more satisfactory heating.

Zonolite, the Wonder Mineral. (18 min) 16sd. Free loan: Zonolite.

• Vermiculite in its crude state, process of manufacture, use as insulation fill in attics and sidewalls; plaster aggregate for use in place of sand for making lightweight plaster, concrete aggregate for use in place of sand and gravel to make lightweight insulating concrete.

S L I D E F I L M S

Building Trades, Careers in. $2. SVE.

Marble, Vermont. $2. SVE.

Woodworker's Tools. (36 frames) Vis Sci.

Shows over 100 commonly used hand tools, describing details of tools and their use.

CEMENT INDUSTRY

M O T I O N P I C T U R E S

Construction That Endures. (15 min) 16si. USBM.

Shows cement construction: strength, durability, versatility. Shows uses in highways, buildings, canals, pools, bridges.

Drama of Portland Cement. (30 min) 16sd. Free loan: Modern.

• Production of Portland cement from raw material to finished product. Sponsored by Portland Cement Association.

S L I D E F I L M S

Cement Finisher. $2. SVE.

Occupations in Cement Manufacturing. $2.25. Voca Guidance-SVE.

CLOCKS & WATCHES

M O T I O N P I C T U R E S

Big Ben—The People's Friend. (25 min) 16sd —loan. Westclox.

Surveys activities in a large clock plant. Covers jobs in the industry in which lathes, milling machines, and special jeweler's tools are used. Shows testing of raw materials for tensile strength, rupture, torsion, etc. Shows work of comparator operator, staking-machine operator, matcher, finisher, dialer, etc.

Bulova Training Series. (11 min ea) 16sd. Bulova School of Watchmaking, Woodside, Long Island, New York.

A series of films, some in color, which describe various operations of assembly, disassembly, and repair in the watchmaking industry, including three films on the escapement and nine on the hairspring.

Paris School for Watchmaking. (20 min) 16si. French Cul.

Shows various vocational studies in a school of watch-making.

Passing Hours. (12 min) 16sd. AF Films.

Depicts the development of clocks, through the middle-age period to the present age.

Story of the World's Most Honored Watch, The. (12 min) 16sd-color. Free loan: Ideal.

• The intricate and absorbing processes necessary in producing a fine watch. Sponsored by Longines-Witnauer.

Time—Servant of Man. (20 min) 16sd. Modern.

Presents a history of man's efforts to measure time. Sponsored by Elgin National Watch Company.

S L I D E F I L M S

Timekeepers. (39 frames) si. Purchase: Vis. Sci.

• The evolution of clocks and watches.

Timekeepers Through the Ages. (39 frames) Vis Sci.

Traces the development of the clock from earliest antiquity to the present day.

COOPERAGE

M O T I O N P I C T U R E S

Container on Wheels, The. (25 min) 16sd-color. Free loan: Assoc. Cooperage.

• Showing uses of wooden barrels.

Helping America Deliver the Goods. (30 min) 16sd-color. ACIofA.

Depicts manufacture of wooden barrels and kegs, providing a comprehensive treatment of the cooperage industry in technicolor.

GENERAL INDUSTRY

M O T I O N P I C T U R E S

Money at Work. (15 min) 16sd. Free loan: Modern.

• The New York Stock Exchange in action; how trading is done; relationship between industry, investment banker, Stock Exchange and public. Sponsored by New York Stock Exchange.

S L I D E F I L M S

Apprenticeships in Industry. $2. SVE.

Manufacturing Development in Pennsylvania. $2. University Museum-SVE.

OFFICE MAINTENANCE

M O T I O N P I C T U R E S

Damp Sweeping. (15 min) 16si-color. AT & T.

Designed to aid in the training of service employees in the use of the damp-sweeping tool in dial offices.

PAINTING

M O T I O N P I C T U R E S

Paint Is Our Business. (15 min) 16sd-color. Free loan: Benjamin Moore.

• Processes necessary in manufacture of paint; machinery used in sponsor's plants.

Painting and Decorating. (1 rl) 16sd. Voca Guidance.

Shows both exterior and interior painting. Il-

lustrates use of the tools of the trade. Work of painters in applying many of paint materials on various surfaces is shown.

Repainting a Frame Building. (18 min) 16sd-$30.01. USOE-Castle. OE 460

Shows how to prepare building for painting; how to set up staging; how to prepare paint; how to apply the prime and second coats; and how to take care of brushes, paint, and equipment.

S L I D E F I L M S

Care & Cleaning of Spray-Painting Equipment. (57 pictures) Jam Handy.

Typical outfit; how it works; types aircaps; internal mix, external mix, and suction; gun construction and use; cups; suction feed, gravity feed, and pressure feed; tanks; agitators; air and fluid hoses; types and construction, transformers and condensers; cutaway sections of all principal parts.

PAPER INDUSTRY

M O T I O N P I C T U R E S

The Gift of T'Sai Lun—Paper. (33 min) 16sd. Part color. Hammermill.

Presents a history of the paper industry down through the ages to present times. Opens with a portrayal of the work of T'Sai Lun, the Chinese scholar, in inventing paper. A step-by-step account of operations of paper-making is shown, from logging to shipping of finished paper.

Paper. (11 min) 16sd. EBFilms.

Portrays the story of paper making from the cutting of trees in the forest to the finished paper. Includes demonstrations on how to make various articles for children from paper.

Paper Making. (20 min) 16sd. Coronet.

Shows in complete detail the process involved in converting trees from the forests of the United States and Canada into paper. The action of the digester and bleacher are explained in animated diagrams. The operation of the large paper machines as well as the calendering machine and testing of the paper in research laboratories are shown.

Short Course in Paper Making. (30 min) 16sd-loan. Glatfelter.

Shows the complete manufacture of fine papers in a modern mill. Begins with the cutting of the trees from which the wood pulp is obtained and continues through each subsequent process. Such indirect processes as power and steam production, water filtration, laboratory testing and control, and reclaiming of unused material are also presented.

Trees to Tribunes. (30 min) 1943. 16sd. Modern.

Various steps required to produce a metropolitan newspaper, from logging to delivery of paper. Sponsored by The Chicago Tribune.

The World of Paper. (29 min) 16-35si. GE.

Traces the art of writing from the beginning when primitive man carved figures in stone through the Egyptian era with its use of papyrus. Re-enacts discovery of paper by the Chinese. Shows twentieth century paper production and the electrically-driven machinery which carries a thin ribbon of paper through many tons of steel.

S L I D E F I L M S

Paper in the Making. $2. SVE.

PRINTING

M O T I O N P I C T U R E S

Bound To Last. (15 min) 1935. 16sd. Ganz.

Studies various hand and machine operations in book printing and binding crafts. Sequences at the Library of Congress, the Government Printing Office, and the New York Public Library. Shows work of copyreader, monotype-keyboard operator, linotype operator, proofreader, compositor, folding-machine operator, gathering-machine operator, and others.

How To Make a Good Impression. 16sd-color. Harris-Seybold-Potter.

Explains lithographic printing process in relation to those who buy printing for any purpose. Follows preparation and reproduction of a typical job in a lithographic shop; shows basic differences between lithography, letterpress, and gravure.

Magazine Magic. (27 min) 16sd-color. Modern.

An overall review of the procedures involved in the production of five leading Curtis publications.

Printing. (1 rl) 16sd. Voca Guidance.

Describes various jobs in printing establishment, such as compositors, pressmen, bindery, layout, linotype and monotype setters, and proofreaders. Letter press, rotary, offset, and newspaper are shown in operation, and skills necessary to operators of these types of equipment are explained. Outlines training in hand composition, printers arithmetic, word division, hand fed press operation, and small automatics.

S L I D E F I L M S

The Fundamentals of Lithography. si. BEVA.

The Fundamentals of Rotogravure. si. BEVA.

RUBBER INDUSTRY

M O T I O N P I C T U R E S

American Success Story. (20 min) 16sd. Free Loan: Goodyear.

• A wartime picture showing development of synthetic rubber.

Arizona Story. (45 min) 16sd. Free loan: Goodyear.

• Goodyear's operations at Litchfield Park, Ariz. Explanation of apprentice farmer program.

Bouncing Molecules. (20 min) 16sd-color. Apply: Esso Standard.

• Molecular structure of butadiene gas, basic material used in manufacture of substitute rubber.

The Building of a Tire. (28 min) 16sd.-color. Assn.

Depicts the tire-making industry. Animated drawings are used to show what happens inside of the machines that are employed in the tire-making process. Shows work on the plantation, in the mill, and in the factory. A Walt Disney production.

Conquering the Jungle. (10 min) 16si. Free loan: Goodyear.

• The story of clearing swamp-ridden land in Sumatra of giant trees, underbrush and other obstacles to planting rubber.

Exclusively Yours. (30 min) 16sd. Free loan: Socony-Vacuum.

• Detailed description of design and construction of Mobiltire.

Freedom Rides on Rubber. (30 min) 1944. 16sd-loan. Firestone; Assn.

Depicts the history, development, and the final making of synthetic rubber.

From Nine to Noon. (20 min) 16sd. Free loan: Goodyear.

• Through modern rubber factory, demonstrating processes rubber passes through in manufacture of passenger car tires and tubes.

Materials of War. (40 min) 1944. 16sd. U S Rubber.

Most important operations in manufacture of various rubber items for war.

Rubber Goes Synthetic. (23 min) 16sd. Apply Esso Standard.

• Shows research necessary for production of synthetic rubber.

Rubber Reborn. (10 min) 16sd. Midwest Rubber.

Shows step by step the manufacture of reclaimed rubber from raw material to finished product.

Rubber River. (15 min) 16sd-color. Free loan: Ideal.

• Motion picture record of search for new rubber sources in Central America. Sponsored by Dodge Motors.

Step On It. (20 min) 16sd. Free loan: Goodyear.

• Manufacture and testing of Neolite heels and soles at Goodyear plant in Windsor, Vt.

Story of Neoprene, The. (20 min) 1940. 16sd. Free loan: DuPont.

• How neoprene can be used for variety of purposes for which rubber is not satisfactory.

Strategic Materials. (17 min) 16sd-color. Free loan: Ideal.

• Industrial pioneering and scenic beauty in Central America. Sponsored by Dodge Motors.

Synthetic Rubber. (21 min) 1944. 16sd-loan. Goodyear.

Step-by-step processes in the making of chemicals into rubber. Covers the history of the development of synthetic rubber.

S L I D E F I L M S

Rubber Industry, The. $2. SVE.

Repainting a Frame Building

TEXTILE & CLOTHING INDUSTRIES

MOTION PICTURES

Cooperative Wool—From Fleece to Fabric. (30 min) 1938. 16sd. Available for loan from extension division of State University or Agricultural College in most states.

Operations such as wool-shearing and fleece-grading are emphasized. Also stresses cooperative marketing and how wool growers' associations market wool. Some sequences on manufacturing process.

Cotton, Civilization's Fabric. (30 min) 16si. Fruit of the Loom Mills.

Cotton picking, ginning, and baling. Sorting and preparing for spinning. How the cotton is spun into fine threads, spooled, warped, woven, inspected, bleached, and washed.

Cotton from Seed to Cloth. (30 min) 16-35si—loan. State of New Jersey.

Explains various types of machinery and operations used in cotton-cloth manufacture. An overall treatment of subject, from selection of seed and planting of cotton to finished product. Technical terminology of industry is used throughout, and animated sequences are shown for clarification of processes.

Dear Miss Markham. (26 min) 16sd. Free loan: Modern.

• The many steps necessary in changing raw cotton into yarn and finally into bed sheets. Sponsored by Pepperell Manufacturing Co.

Enterprise. (31 min) 16sd. Free loan: Modern.

• How free enterprise and idea of two war veterans restored prosperity to a cotton town that had gone to seed. Sponsored by Cluett, Peabody & Co.

Facts About Fabrics. (26 min) 1941. 16sd-loan. DuPont Rayon.

Shows yarns, their construction, dyeing operations and manufacture into textiles.

Flamefoil—Canvas Protection. (22 min) 16sd-color. Philadelphia Textile Finishers-Barell.

Tells story of the manufacture and the use of the specially treated textile in awnings, shoes, luggage, and tarpaulins, also pointing out its qualities of resistance to fire, water, and mildew. Includes sequences of tests made on plasticized canvas, demonstrating the value of the treatment.

Harnessing the Rainbow. (29 min) 16sd-color. DuPont.

Illustrates the differences between dyes for plant derived materials (cotton, linen), animal derived (wool), or synthetic textiles (rayon, nylon). Shows what is being done to provide good dyes for every purpose, from careful preparation to expert matching and analysis. Includes camera tours of experimental laboratories and dye-stuff production plants.

How Rayon Is Made. (15 min) 16sd. Free loan: American Viscose.

• Semi-technical film showing key steps in manufacture of both viscose and acetate rayon. (Produced in 1941 under title "Rayon—A New Frontier of Progress" and revised in 1945.)

If the Shoe Fits. (15 min) 16sd. Inst. of Visual Trng.

Presents a study of the flow of materials through varied operations that results in the production of finished shoes. Studies job duties, tools and machines, and raw materials involved.

Irish Linen. (21 min) 16sd-color. Hartley.

How Irish linens are made, from the growing of flax to finished product. Includes many ideas on the use of linen in the home, how to set a table, etc.

King Cotton. (19 min) 1940. 16sd-sale. GM; Jam Handy.

Shows improvements in the growing and ginning of cottons, how the finished product is used—including the manufacture of lacquer, upholstery, plies for tires, plastics and textiles.

Magic of Shoe Making. (30 min) 16si. Gallen Kamp.

Latest machine processes from cutting to finishing.

Making Cotton Clothing. (10 min) 16sd. EBFilms.

Depicts the step-by-step procedure to be followed in making a cotton dress for a child. Shows process from designing to mass-production of finished garments.

Men's Clothing Industry. (2 reels, 30 min) 1935. 16si. Howard; Films of Commerce.

Training high school students in needle trades; work performed by various types of operators in the making of men's clothing in a factory; merchandising of clothing.

Modern Rug & Carpet Making. (15 min) 1941. 16sd-partly color-free. Films of Commerce.

Depicts the manufacture of Alexander Smith rugs and carpets in a large modern mill. Different kinds of weaves are geographically shown.

A Personal Investment. (40 min) 1941. 16sd. Hart, Schaffner, & Marx.

Depicts work involved in making a man's suit-coat. Emphasizes skill required of workers.

Science Spins a Yarn. (25 min) 16sd-color. 1947. Free loan: American Viscose.

• Story of 300-year struggle to create and perfect rayon.

Story of Leather. (33 min) 16sd-part color. Tanners.

The processes involved in the manufacture of leather from the round-up of cattle on the plains to the finished product.

This Is Nylon. (30 min) 16sd-color. 1949. Free loan: DuPont.

• Primarily for buyers and sales personnel in department stores and specialty shops, textile classes and women's clubs. Combines chemist's story of properties of nylon, in non-technical language, with his wife's report of fashion show.

Threads of a Nation. (11 min) 16sd-color. Columbia Pictures.

Cotton from fields to finished fabric.

Woolen Yarn, A. (15 min) 16-35si. GE.

History of the woolen industry, portraying the crude methods of early times, and the efficiency of modern electrically operated mills. The whole process is authentically portrayed, from the clipping of sheep through carding and washing the wool, drawing and combing it all by electricity. In contrast with early methods, modern spinning, winding and weaving operations are shown.

Wool Marketing and Manufacturing. (45 min) 1932. 16-35si. Available for loan from extension division of State University or Agricultural College in most states.

Detailed description of continuity of operations in woolen textile industry. Shows sorting of wool into twelve grades, removal of paint and tar, scouring of fleece in machines, spinning for formation of worsted yarn, beaming, etc.

SLIDE FILMS

How Rayon Is Made. (67 frames) 35si. Free loan: American Viscose.

• Covers same material as motion picture of same name.

Leather, A Trip Through a Modern Plant. $2. SVE.

Rayon, The Story of. $2. SVE.

Regarding Free Loan Subjects

• Unless a price is indicated in the first two lines of each subject listed, it is most likely available on free loan. However, where prices for rental or print sale were not available they may not be given. Note the sponsor source in this case. Where sources indicate a national advertiser or manufacturer, *free loan* (requiring only payment of shipping charges to and from the borrower's location) is indicated.

THERMODYNAMICS

SLIDE FILMS

Distributing Heat Energy. (11 min) 16sd. EBFilms.

Location photography reveals the nature of heat sources—coal, gas, electricity, oil, and wood. Animation describes the operation of hot air, hot water, and steam heating plants using coal, gas, and oil as fuels. The principles of conduction and convection likewise are illustrated. Methods and materials of insulation for houses and containers are explained and demonstrated.

Energy & Its Transformations. (10 min) 1933. 16sd-$50. EBFilms.

Representations of potential, kinetic and radiant energy, as manifested in mechanical, electrical, chemical, and thermal forms are explained and illustrated by such devices as the pile driver, the water turbine, and a dynamite explosion. The law of conservation of energy is shown. Representations of atomic energy are shown.

Fuels & Heat. (11 min) 1938. 16sd-$50. EBFilms.

Animation shows the manufacture and storage of carbohydrates by plants; the role of carbon in the burning of fuels; the formation of coal and petroleum; the process of combustion; molecular action in relation to heat and temperature; and the operation of the steam and gasoline engines. Natural photography supplements the animated interpretations with examples from everyday applications.

Heat & Its Control. (45 min) 16sd. Johns-M.

Shows how heat can be used to do work if it is controlled properly. The uses of various types of insulation material, especially asbestos, are described.

Story of Rock Wool Home Insulation, The. (25 min) 1942. 16sd. Johns-M in cooperation with USBM.

Shows the cause of draft and loss of heat due to lack of insulation.

Thermodynamics. (11 min) 1938. 16sd-$50. EBFilms.

Deals with an interpretation of selected heat phenomena. Animation depicts molecular action in heated iron with relation to temperature. The chemistry of combustion is illustrated graphically. Transformations of energy in the steam engine, the steam turbine, gasoline engine, and Diesel engine are explained. The first and second laws of thermodynamics are portrayed. Location photography associates the application of concepts involved to problems of modern industry.

What, Why and Where of Speed Heating, The. (10 min) 16sd. Free loan: Westinghouse.

• Putting heated air where it is wanted and in a hurry; explanation; wide variety of uses.

S L I D E F I L M S

Fire & Heat. $2. Vis Sci-SVE.

Physics.

G L A S S S L I D E S

Heat. (28 slides) AMNH.

Causes of heat; sources of heat; determining temperatures; modes of transferring heat from one place to another; expansion of heat; latent heat; electric heat.

Heat in Harness. (800 slides) Minneapolis-Honeywell Regulator Company.

A comprehensive course covering 1400 items of control apparatus manufactured by the sponsor. Created for heating trade schools and presented at series of four meetings. Photographs, charts, diagrams, showing circuits, wiring, piping and actual installations.

MISCELLANEOUS

M O T I O N P I C T U R E S

Chemical Weed Control. (25 min) 16sd. Color. Loan: Dow.

• Shows methods of applying chemicals for weed control in major crops of the United States and Canada and possible new uses for these chemicals.

Concrete Facts. (25 min) 35sd. Free loan: Master-Builders.

• Action and benefits of cement dispersion and air entrainment; showing durability of concrete and how it can be further improved.

Crossroads for America. (30 min) 16sd. Rent: Swank. Purchase: Research Inst.

• How American Communists operate and what they say about business and profits.

Design and Construction of a Modern Water Collection and Transmission System. 35 min) 16sd. Free loan. Johns-Manville.

• Basic points of design of modern water collection system; locating and collecting sub-surface water; installation of pipelines and pumping stations; construction of dams and wells.

Design and Construction of Riley Steam Generating. (45 min) 16sd. Color. Loan: Riley.

• Boiler design and construction.

It Could Happen Here. 35sd. slidefilm. Purchase: Commercial.

• Communist threat to the American way of life telling activities and goals of the Communist Party of the U. S.

Leather Making. (20 min) 1945. 16sd. Purchase: Library.

• Roundup of instructional information on leather manufacture.

Miracle Under Foot. (15 min) 16sd-color. Free loan: Hartley.

• Describes manner of approaching home decorating problems and their ultimate solution using both provincial and modern furniture and accessories. Sponsored by Bigelow-Sanford Carpet Co.

Mobile Radio Telephone Service. (12 min) 35sd. slidefilm. Loan: AT&T.

• Typical business uses of mobile radio-telephone service followed by the probable scope of its application and its advantages to various kinds of business concerns.

Money at Work. (15 min) 16sd. Free loan: Modern.

• Purpose of New York Stock Exchange in putting money to work to make jobs.

New Horizons. (20 min) 16sd-color. Free loan: Princeton.

• Finished products and natural wealth; coal, iron, cotton, lumber, and modern farming methods.

Oklahoma Industry. (17 min). Loan; service charge 50c: U. of Okla.

• State's industries, from agriculture to zinc.

Our Industrial Air Power. (28 min) 16sd. Color. Loan: Quincy.

• Assembly of air compressor.

Plantation in Peru. (1 rl) 16sd-color or B & W. Purchase: Hollywood.

• Entire process of sugar growing and refining and producing valuable crop from barren wasteland in Peru.

Principles of Refrigeration. (10 min) 16sd. Rent: Ideal; Ind. U.; Kunz; Syracuse U.; UWF; U. of Ill.; U. of Mich.

• Various parts of mechanical refrigerator and the scientific principles on which they operate.

Scrap for Victory. (11 min) 16sd; (1 rl) B & W. 1941. Purchase: Brandon.

• How entire family can help salvage needed materials in time of emergency. Produced in cooperation with War Salvage Division of War Production Board.

Shock Troops for Defense. (11 min) 16sd; 1941. Purchase: Brandon.

• Produced in cooperation with New York City Fire Department, film brings out the need of volunteer auxiliary firemen in emergencies and depicts training procedures.

Story of Air Freight, The. (22 min) 16sd. Color. Purchase or loan: Slick Airways.

• Entire operation in handling and transporting of air freight.

Useful Knots. (24 min) 16sd. Purchase: Castle.

• Explains and demonstrates how to tie common knots.

S L I D E F I L M S

Basic Science Series. Purchase: SVE.

• Basic series of six dealing with range of subjects; made to correlate with Row Peterson Company Basic Science Program. 1. Electric Magnets; 2. Electricity; 3. Our Ocean of Air; 4. Permanent Magnets; 5. Simple Machines; 6. The Air About Us.

Biology. si. Series of 8 rolls. Purchase: Vis Sci.

• 288 anatomical charts and descriptions of all typical animals from protozoa through arthropoda.

General Science Why Series. Purchase: SVE.

• First four in series designed to explain basic principles responsible for our climate and daily weather changes. 1. Why Does the Wind Blow?; 2. Why Does the Weather Change?; 3. Why the Seasons?; 4. Why Does It Rain, Snow, Hail and Sleet?

Microbiology. si. (50 frames). Purchase: Vis Sci.

Optical Illusions. (36 frames) si. Purchase: Vis Sci.

• Collection of optical oddities used in science, art, and psychology classes.

Story of Slab 37, The. (25 min). 35sd. Free loan: Master Builders.

• Step-by-step placement of various types of concrete floors, explaining advantages of metallic-hardened floors, selection of aggregates and low water-cement ratio.

Sources of Films Available

(A KEY TO ABBREVIATIONS OF SOURCES LISTED)

ACIofA: Associated Cooperage Industries of America, 408 Olive St., St. Louis, Missouri.

Adel: Adel Precision Products Corp., 10777 Van Owen, Burbank, Cal.

AF Films: A.F. Films, Inc., Room 1001, 1600 Broadway, New York City 19.

AISC: American Institute of Steel Construction, Dept. Educational Service, 101 Park Ave., N. Y. City 17.

Allegheny Ludlum: Allegheny Ludlum Steel Corp., Oliver Bldg., Pittsburgh 22, Pa.

Allen: Allen Equipment Co., Kalamazoo, Mich.

Aluminum Co. (ALCOA): Aluminum Company of America, Motion Picture Dept., Gulf Bldg., Pittsburgh 19, Pa.

Am Pet Inst: American Petroleum Institute, 50 W. 50th St., N. Y. City 20.

Am Soc for Metals: American Society for Metals, 7301 Euclid Ave., Cleveland.

Amelia Earhart: Amelia Earhart Luggage Co., Newark 5, N. J.

American Film: American Film Registry, 24 E. Eighth Street, Chicago, Ill.

American Legion: American Legion National Headquarters, Indianapolis 6, Ind.

American Mono-Rail: American Mono-Rail Co., 13107 Athens Ave., Cleveland 7, Ohio.

American Mutual: American Mutual Alliance, 919 N. Michigan Ave., Chicago 11, Ill.

American Newspaper: American Newspaper Publishers Association, 360 N. Michigan Ave., Chicago 1, Ill.

American Viscose: American Viscose Corp., 350 5th Ave., N. Y. City 1. Distribution through these libraries: Los Angeles Bd. of Ed., 1205 W. Pico Blvd.; San Diego (Cal.) City and County Schools; Santa Clara (Cal.) County Schools; Universities of Col., Fla., Ga., Ill., Ind., Ky., Me., Mass., Mich., Minn., N. H., Okla., Tenn., Tex., Brigham Young, W. Va., Wisc.; Idaho State College; Iowa St. Coll.; Boston Pub. Schools; Grand Rapids (Mich.) Pub. Lib.; City Coll. of N. Y.; Haaren H. S. (N. Y. C.); N. Y. State Dept. of Com.; Cleveland Pub. Schools; Dayton (O.) Bd. of Ed.; Oregon St. Coll.; Library Assn. of Portland, Ore.; Penn St. Coll.; Women's Penn. SPCA (Philadelphia); Seattle Pub. Lib.; Tacoma Pub. Schools.

American Walnut: American Walnut Manufacturers Association, 666 N. Lake Shore Dr., Chicago 11, Ill.

AMNH: American Museum of Natural History, 79th & Central Pkwy., N. Y.

Ampco: Ampco Metal, Inc., 38th & Burnham sts., Milwaukee 4, Wisc.

Anaconda: Anaconda Copper Mining, 25 Broadway, N. Y. City 4.

Anthracite Inst.: Anthracite Institute & Anthracite Industries, Inc., 101 Park Ave., N. Y. City 17.

Armco: Armco Steel Corp., 703 Curtis, Middleton, O.

Armour: See Modern.

ARR: Association of American Railroads, Motion Picture Division, Transportation Bldg., Washington 6, D. C.

ASBE: American Society of Bakery Engineers, Dept. of Visual Education, 208 3rd Ave., SE, Minneapolis 14, Minn.

Assn: Association Films, YMCA Motion Picture Bureau, 347 Madison Ave., New York City 17; 206 S. Michigan Ave., Chicago, Ill.; 351 Turk St., San Francisco, Calif.; 1700 Patterson St., Dallas, Tex.

AudiVision: AudiVision, Inc., 285 Madison Ave., New York City 17.

Audio-Visual: Audio-Visual Corp., 53 Allyn St., Hartford, Conn.

Automatic: Automatic Transportation Co., 101 W. 87th St., Chicago 20, Ill.

B & H: See **United World Films.**

Babcock: Babcock & Wilcox Co., Advertising Division, 85 Liberty St., New York City 6.

Bailey: Bailey Film Service, 1651 Cosmo St., Hollywood 28.

Bakelite: Bakelite Corp., (Unit of Union Carbide & Carbon) Bennington, Vt.

Barber-Greene: Barber-Greene Co., 630 Park Ave., Aurora, Ill.

Behr Manning: Behr-Manning Corp., Division Norton Co., Troy, N. Y.

Bell Aircraft: Bell Aircraft Corp., P.O. Box 1, Buffalo 5, N. Y.

Belle City: Belle City Malleable Iron Co., 1442 Forest Ave., Racine, Wisc.

Bendix: Bendix Aviation Corp., 616 Fischer Bldg., Detroit 21, Mich. Also Bendix Products Division, 401 Bendix Dr., South Bend 20, Ind.

Bethlehem: Bethlehem Steel Co., Bethlehem, Pa.

Better Vision: Better Vision Institute, Inc., 630 Fifth Ave., New York City 20.

BEVA: Business Education Visual Aids, 104 W. 61st St., New York City 23.

B G Spark Plug: B. G. Corp., 136 W. 52nd St., N. Y. City 19.

BIS: British Information Services, 30 Rockefeller Plaza, N. Y. City 20; 39 S. LaSalle St., Chicago, Ill.; 391 Sutter St., San Francisco 8, Cal.; 907 15th St., N.W., Washington 5, D. C.

Boots: Boots Aircraft Nut Corp., 50 John St., Stamford, Conn.

Borg-Warner: Borg-Warner Corp., 310 S. Michigan Ave., Chicago 4, Ill.

Brandon: Brandon Films, 1700 Broadway, New York City 19.

Bray: Bray Pictures Corp., 729 7th Ave., N. Y. City.

Breskin: Breskin Publishing Co., Film Booking Dept., Chanin Bldg., 122 E. 42nd St., N. Y. City 17.

Bryant Chucking: Bryant Chucking Grinder Co., Springfield, Vt.

Buchan: Buchan Pictures, 79 Allen St., Buffalo 2, N. Y. Distribution New York State only.

Bullard: Bullard Co., Ray & Bray Sts., Bridgeport 2, Conn.

Bus Ed: Business Education Visual Aids. See **BEVA.**

By-Products Ammonia: By-Products Ammonia, Educational & Research Bureau, 50 W. Broad St., Columbus 15, O.

CAA: Civil Aeronautics Administration, Audio-Visual Aids, W-153, Washington 25, D. C. Branch offices (Address inquiries to the Office of the Assistant to the Regional Administrator, Aviation Training, Civil Aeronautics Administration): Federal Bldg., N. Y. International Airport, L. I., N. Y.; 5651 West Manchester Ave., Los Angeles 45, Cal.; 84 Marietta St., N. W., Atlanta 3, Ga.; P.O. Box 3224 (Smith Tower Annex), Seattle 14, Wash.; Chicago International Airport, Park Ridge, Ill.; P.O. Box 440, Anchorage, Alaska; P.O. Box 1689, Fort Worth 1, Tex.; P.O. Box 4009, Honolulu, T.H.; 9th Floor, City Hall Bldg., Kansas City 6, Mo.

Cabot: Godfrey L. Cabot, Inc., 77 Franklin St., Boston 10, Mass.

CBS: Columbia Broadcasting System, 485 Madison Ave., New York City 22.

Camera: Camera Shop, 1003 Pacific Ave., Tacoma, Wash.

Canadian Pacific: Canadian Pacific Railway Co., Windsor Station, Montreal.

Cannon Electric: Cannon Electric Development Co., 3209 Humboldt, Los Angeles 31, Cal.

Caravel: Caravel Films, Inc., 730 5th Ave., N. Y. City.

Carboloy: Carboloy Company, Roosevelt Park, P.O. Box 237, Detroit 32, Mich. Branch offices: 844 S. Canal St., Chicago 7, Ill.; 4966 Woodland Ave., Cleveland 4, Ohio; 743 N. 4th St., Milwaukee 3, Wisc.; 1060 Broad St., Newark 2, N. J.; 613 Hardt Bldg., Philadelphia 22, Pa.; 704 2nd Ave., Pittsburgh 19, Pa.

Carborundum: Carborundum Co., Niagara Falls, N. Y.

Carroll: Phil Carroll, Jr., 6 Crestwood Drive., Maplewood, N. J.

Cast Iron: Cast Iron Pipe Research Association, 122 S. Michigan Ave., Chicago 3, Ill.

Castle: Castle Films, Div. of United World Films, contracting distributor for film sales of the U. S. Office of Education, Division of Visual Aids. Castle Films, Inc., 1445 Park Ave., N. Y. City 29. Branch offices at 542 S. Dearborn St., Chicago 5, Ill.; 7356 Melrose Ave., Los Angeles 46, Cal.; 287 Techwood Dr., N.W., Atlanta 3, Ga.

Caterpillar: Caterpillar Tractor Co., Advertising Dept., Peoria, Ill.

Celanese: Celanese Plastics Corp., 180 Madison Ave., N. Y. City 16.

Champion: Champion Spark Plug Co., 904 Upton Ave., Toledo 1, O.

Chase: Cleveland B. Chase Co., Inc., 424 Madison Ave., New York City 17.

Chicago Tribune: Chicago Tribune, Public Service Bureau, 1 S. Dearborn St., Chicago, Ill.

Chrysler: Chrysler Corp., 341 Massachusetts Ave., Detroit 31, Mich.

Cin Mill: Cincinnati Milling Machine Co., Marburg Ave., Cincinnati 9, O.

City College: City College of New York, Audio-Visual Center, 17 Lexington Ave., New York City 10.

Cl Moly: Climax Molybdenum Co., 500 5th Ave., N. Y. City 18.

Clark: Clark Equipment Co., Industrial Truck Division, Advertising Dept., Battle Creek, Mich.

Cleveland: Cleveland Twist Drill Co., 1242 E. 49th St., Cleveland, O.

Cleveland Pneumatic: Cleveland Pneumatic Tool Co., 3781 E. 77th, Cleveland, O.

Coca Cola: The Coca-Cola Co., National Sales Division, 515 Madison Ave., N.Y.C. 22.

Cocking: Floyd W. Cocking, 4757 Constance Dr., San Diego, Cal.

College Film: International Film Bureau, 6 N. Michigan Ave., Chicago 2, Ill.

Columbia Pictures: Columbia Pictures Corp., 729 7th Ave., N. Y. City 19.

Columbia Tool: Columbia Tool Steel Co., Chicago Heights, Ill.

Commercial: Commercial Films, 1800 E. 30th St., Cleveland, O.

Community: Community Film Center, Committee on Business Information, 32 Franklin St., Worcester 8, Mass.

Consolidated Aircraft: Consolidated Aircraft Corp., Lindbergh Field, San Diego, Cal.

Consolidated Vultee: Consolidated Vultee Aircraft Corp., San Diego 12, Cal.

Co-op League: Cooperative League, 23 W. 45th St., New York City 19.

Copeland & Thompson: Copeland & Thompson, Inc., 206 5th Ave., New York City 10.

Copper: (See U. S. Bureau of Mines.)

Cornell: Cornell Associates, Inc., 377 West Onondaga St., Syracuse, N. Y.

Crane: Crane Co., 836 S. Michigan Ave., Chicago 5, Ill.

Curtis Pub.: Curtis Publishing Co., Motion Picture and Speakers Bureau, Independence Sq., Philadelphia 5, Pa.

Curtiss-Wr.: Curtiss-Wright Corp., Wood Ridge, N. J.

Damrow: Damrow Brothers Co., Fond du Lac, Wisc.

Dartnell: Dartnell Corp., 4660 Ravenswood Ave., Chicago, Ill.

Davis: D. T. Davis Co., 170 Walnut St., Lexington 34, Ky. Branch offices: 528 S. 5th St., Louisville, Ky.; 911 Main St., Cincinnati, Ohio; 315 W. Cumberland St., Knoxville, Tenn.; 1916 Broadway, Nashville, Tenn.

Dearborn Chemical: Dearborn Chemical Co., 310 S. Michigan Ave., Chicago 4, Ill.

De Frenes: De Frenes & Co., 1919 Buttonwood St., Philadelphia Pa.

deSanno: A. P. deSanno & Son., Inc., Wheatland, Phoenixville, Pa.

Denver: Denver & Rio Grande Western Railroad, Rio Grande Bldg., Denver 1, Colo.

DLCAssn: Dairymen's League Cooperative Assn., Inc., 11 West 42nd St., N.Y.C.

Do All: Do All Company, 254 N. Laurel Ave., Des Plaines, Ill.

Douglas Fir: Douglas Fir Plywood Assn., 301 Tacoma Bldg., Tacoma 2, Wash.

Dow: Dow Chemical Co., Midland, Mich.

Du Pont: E. I. Du Pont de Nemours Co., 1007 Market St., Wilmington 98, Delaware.

Du Pont Rayon: E. I. Du Pont de Nemours & Co., Rayon Division, Wilmington 98, Delaware.

Eaton: Eaton Manufacturing Company, 739 E. 140th St., Cleveland 10, Ohio.

EBFilms: Encyclopaedia Britannica Films, Wilmette Ave., Wilmette, Ill.

Edison: Thomas A. Edison, Inc., West Orange, N. J.

Edit PS: Edited Pictures System, 330 W. 42nd St., N. Y. City.

Elec Motor: Electric Motor Corp., 1211-1221 State, Racine, Wisc.

Electric Arc: Electric Arc Co., 152 Jelliff Ave., Newark, N. J.

Electro-Chemical Eng: Electro-Chemical Engineering Co., 114 Liberty St., N. Y. City.

Elgin: Elgin National Watch Co., Elgin, Ill.

Esso: Standard Oil Company of New Jersey, 26 Broadway, N. Y. City 4.

Ethyl: Ethyl Corp., 100 Park Ave. Bldg., New York City 17.

Fe Pr: Federal Products Corp., 1144 Eddy St., Providence 1, R. I.

Fellows: The Fellows Gear Shaper Co., 78 River St., Publicity Dept., Springfield, Vermont.

Fenn: Fenn Manufacturing Co., 1841 N. Fremont Ave., Minneapolis, Minn.

Films: Films, Inc., 330 W. 42nd St., N. Y. City 18.

Films of Commerce: Films of Commerce, 21 W. 46th St., N. Y. City.

Fir Door Inst: Fir Door Institute, Rust Bldg., Tacoma 2, Wash.

Firestone: Firestone Tire & Rubber Co., 1200 Firestone Pkwy., Akron 17, O.

Ford: Ford Motor Co., 3000 Schaefer Rd., Dearborn, Mich.

Formica: Formica Co., 4614 Spring Grove, Cincinnati 32, O.

Franklin: Franklin Institute, 548-552 E. Main St., Rochester 4, N. Y.

Franz: Franz Baking Co., Portland, Ore.

French Cul: French Cultural Services, 934 5th Ave., New York City 21.

Fruit of the Loom: Fruit of the Loom Corp., 1450 Broadway, N. Y. City 18.

Fuller: Fuller Brush Co., 3580 Main, Hartford 2, Conn.

Fulton: The Fulton Sylphon Co., Knoxville 4, Tenn.

Gallen Kamp: (See SVE).

Ganz: W. J. Ganz, 19 E. 47th St., N. Y.

GE: General Electric Co., Visual Instruction Section, 1 River Road, Schenectady, N. Y. Branch Offices: 920 SW 6th Ave., Portland, Ore.; Department of Visual Instruction, U. of California, Berkeley, Cal.; 235 Montgomery St., San Francisco, Cal.; 212 N. Vignes St., Los Angeles, Cal.; 200 S. Main St., Salt Lake City, Utah; 650 17th St., Denver, Colo.; 1801 N. Lamont St., Dallas, Tex.; 4966 Woodland Ave., Cleveland, O.; 187 Spring St., NW, Atlanta, Ga.; 1405 Locust St., Philadelphia, Pa.; 570 Lexington Ave., N. Y. City; 140 Federal St., Boston, Mass.; 840 S. Canal, Chicago, Ill.

General Foods: General Foods Corp., General Seafoods Division, 1 Fish Pier, Boston 10, Mass.

Gisholt: Gisholt Machine Co., 1245 E. Washington Ave., Madison 10, Wisc.

Glatfelter: P. H. Glatfelter Co., 228 S. Main St., Spring Grove, Pa.

GM: General Motors Corp., General Motors Bldg., 3044 W. Grand Blvd., Detroit 2, Mich.

Goodyear: Goodyear Tire & Rubber Co., Inc., 1144 E. Market, Akron 16, O.

Great Northern: Great Northern Railway, Motion Picture Division, St. Paul, Minnesota.

Green Giant: Green Giant Co., LeSueur, Minn.

Gregg: Gregg Publishing Co., 330 W. 42nd St., New York City 18.

Griffin: Griffin Wheel Co., 410 N. Michigan Ave., Chicago, Ill.

Hammermill: Hammermill Paper Co., Advertising Dept.. East Lake Rd., Erie, Pa.

Hamilton: Hamilton Watch Co., Sales Promotion Dept., Lancaster, Pa.

Har: Harbinson-Walker Refractories Co., Farmers Bank Bldg., 307 5th Ave., Pittsburgh 22, Pa.

Harmon: Harmon Foundation, Inc., Division of Visual Experiment, 140 Nassau St., New York City 7.

Harris-Seybold-Potter: Harris-Seybold-Potter Co., 4510 East 71st, Cleveland 5, Ohio.

Hartley: Hartley Productions, Inc., 20 West 47th St., N.Y.C. 19.

Hart-Schaffner-Marx: Hart, Schaffner, & Marx Co., 36 S. Franklin St., Chicago 6, Ill.

Harvard: Harvard Film Service, Cambridge, Mass.

Harvill: Harvill Corp., 6251 W. Century Blvd., Los Angeles, Cal.

Haselton: Write Simmel-Meservey.

Hathen: Hathen Productions, 264 S. Van Pelt St., Philadelphia 3, Pa.

Hebert: Write Audio-Visual Corp., 53 Allyn St., Hartford, Conn.

Hercules: Hercules Powder Co., Inc., Delaware Tr. Bldg., Wilmington 99, Delaware.

Hills-McCanna: Hills McCanna Co., 3025 N. Western, Chicago, Ill.

Hollywood: Hollywood Film Enterprises, Inc., 6060 Sunset Blvd., Hollywood 28.

Homasote: Homasote Co., Fernwood Rd., Trenton, N. J.

Hotpoint, Inc.: 5600 W. Taylor St., Chicago, Ill.

Howard: Howard Clothes, Inc., 170 Tillary, Brooklyn, N. Y.

Humble: Humble Oil & Refining Co., Film Library, P.O. Box 2180, Houston 1, Texas.

Ideal: Ideal Pictures Corporation, 65 E. South Water St., Chicago, Ill. See Red Book for offices in Los Angeles, Oakland, Denver, Miami, Atlanta, Indianapolis, Des Moines, Louisville, New Orleans, Boston, Detroit, Minneapolis, Kansas City, Mo., St. Louis, New York City, Albany, Baltimore, Cincinnati, Oklahoma City, Portland, Ore., Memphis, Dallas, Salt Lake City, Richmond, Honolulu.

IFB: International Film Bureau, Inc., 6 N. Michigan Ave., Chicago 2, Ill.

IIT: Illinois Institute of Technology, 3300 Federal, Chicago 16, Ill.

Illuminating Eng Soc: Illuminating Engineering Society, 51 Madison Ave., N. Y. City 10.

Ind Eng Col: Industrial Engineering College, 3309 W. Washington Blvd., Chicago 24, Ill.

Ind U: Indiana University, Division of Adult Education and Public Services, 1804 E. 10th St., Bloomington, Ind.

Inland Steel: Inland Steel Co., 38 S. Dearborn St., Chicago 3, Ill.

Inst. of Visual Trng.: Institute of Visual Training, 40 East 49th St., N.Y.C.

Interstate Oil: Interstate Oil Compact Commission, Box 3185, State Capitol, Oklahoma City, Okla.

Int'l Acet: International Acetylene Association, 30 E. 42nd St., N. Y. City 17.

Int'l Film Bureau: 6 N. Michigan Ave., Chicago 2, Ill.

Int'l Film Bureau: See IFB.

Int'l Harvester: International Harvester Co., 180 N. Michigan Ave., Chicago 1.

Int'l Nickel: International Nickel Co., Inc., 67 Wall, N. Y. City 5.

Iowa State: Iowa State College, Visual Instruction Service, Ames, Ia.

Jam Handy: The Jam Handy Organization, 2821 S. Grand Blvd., Detroit 11. Regional offices at 1775 Broadway, New York City 18; Transportation Bldg., Washington 6, D. C.; 917 Liberty Ave., Pittsburgh 22, Pa.; 310 Talbott Bldg., Dayton 2, Ohio; 230 N. Michigan Ave., Chicago 1; 7046 Hollywood Blvd., Los Angeles 28.

Jenkins: Jenkins Bros., Inc., 100 Park Ave., New York City 17.

Johns-M: Johns-Manville, 22 E. 40th at Madison Ave., N. Y. City 16.

Jones & Lamson: Jones & Lamson Machine Co., Advertising Dept., 160 Clinton St., Springfield, Vt.

Jones & Laughlin: Jones & Laughlin Steel Corp., Advertising Dept., 311 Ross St., Pittsburgh 30, Pa.

Kearney: Kearney & Trecker Corp., 6784 W. National Ave., Milwaukee 14, Wisc.

Kerr: Kerr Glass Manufacturing Corp., 433 S. Spring, Los Angeles 13, Cal.

Kerr-McGee: Kerr-McGee Oil Industries, Inc., Oklahoma City,

Knaus: Frank Knaus, 385 Malcolm Dr., Pasadena 2, Cal.

Knowledge: Knowledge Builders Classroom Films, 625 Madison Ave., New York City 22.

Kodak: Eastman Kodak Co., 343 State, Rochester, N. Y.

Kopper's: Kopper's Co., 122 So. Michigan Blvd., Chicago, Ill.

Kramer: Kramer & Co., 1315 W. 21st St., Chicago 18, Ill.

Kunz: Kunz Motion Picture Service, 1319 Vine St., Philadelphia 7, Pa.

Lennox: Lennox Pottery, Inc., Trenton 5, N. J.

Lib. of Cong.: The Library of Congress, Office of the Chief Asst. Librarian, Motion Picture Division, Wash. 25, D. C.

Liberty: Liberty Mutual Insurance Co., Loss Prevention Dept., 175 Berkley St., Boston 17, Mass. Chicago Office: 337 W. Madison St., Chicago 6, Ill.

Library: Library Films, Inc., 25 W. 45th St., New York City 19.

Lincoln Electric: Lincoln Electric Co., 12818 Coit Rd., Cleveland 1, O.

Lindberg: Lindberg Engineering Co., 2450 Hubbard St., Chicago 12, Ill.

Linde: Linde Air Products Co., 30 E. 42nd St., N. Y. City 16.

Lukens: Lukens Steel Co., 73 S. 1st Ave., Coatesville, Pa.

MacGregor: MacGregor Goldsmith, Inc., Adv. Dept., John & Findlay Sts., Cincinnati 4, Ohio.

Mahogany: Mahogany Association, Inc., 75 E. Wacker Dr., Chicago 1, Ill.

Mahnke: Carl F. Mahnke Productions, Vocational Guidance Films, Inc., 2708 Beaver Ave., Des Moines 10, Iowa.

Mallinckrodt: Mallinckrodt Chemical Works, 3600 N. 2nd St., St. Louis 7, Mo.

Mario: Mario Manufacturing Co., 390 4th Ave., N. Y. City.

McFarland: (See Dartnell, also Voca-film.)

Mechanical Handling: Mechanical Handling Systems, Inc., 4600 Nancy Ave., Detroit 12, Mich.

Meehanite: Meehanite Research Inst. of America, Pershing Bldg., New Rochelle, N. Y.

Metal & Thermit: Metal & Thermit Corp., Sales Division, 100 E. 42nd St., New York City 17.

Methods: Methods Engineering Council, Wood & Franklin Sts., Pittsburgh, Pa.

Michigan Seamless: Michigan Seamless Tube Co., South Lyon, Mich.

Micromatic: Micromatic Hone Corp., 8100 Schoolcraft Ave., Detroit 4, Mich.

Midwest Rubber: Midwest Rubber Reclaiming Co., East St. Louis, Ill.

Minn. Canning: Minnesota Valley Canning Co., LeSueur, Minn.

MIT: Massachusetts Institute of Technology, Division of Visual Education, Cambridge, Mass.

Modern: Modern Talking Picture Service, Inc., 45 Rockefeller Plaza, New York City 20. See Red Book for offices in Atlanta, Boston, Buffalo, Cedar Rapids, Charlotte, Chicago, Cincinnati, Cleveland, Dallas, Denver, Detroit, Harrisburg, Indianapolis, Kansas City, Los Angeles, Milwaukee, Minneapolis, New Orleans, New York, Oakland, Omaha, Philadelphia, Pittsburgh, St. Louis, Seattle, Washington, D. C.

Modern Equipment: Modern Equipment Co., Port Washington, Wisc.

Mogensen: Allan H. Mogensen, 330 W. 42nd St., New York City 18.

Mogull: Mogull's, Inc., 112-114 W. 48th St., New York City 19.

N American Aviation: North American Aviation, Inc., 5701 Imperial Highway, Inglewood, Cal.

Nash: Nash Motors Division, Nash Kelvinator Corp., 14250 Plymouth Rd., Detroit, Mich.

Nat Indust: National Industrial Information Committee, Motion Picture Editor, 444 Madison Ave., New York City.

Nat'l Carbon: National Carbon Co., Inc., 30 E. 42nd St., N. Y. City 17.

Nat'l Machinery: National Machinery Co., P.O. Box 804, Tiffin, Ohio.

Nat'l Safety: National Safety Council, 201 E. North Water St., Chicago, Ill.

Nat'l Tube: National Tube Co., Frick Bldg., Pittsburgh 30, Pa.

Navy: See Castle Films.

NEFilms: National Educational Films, 165 W. 46th St., N.Y.C. 19.

New Departure: New Departure Division, General Motors Corp., Bristol, Conn.

New York: New York, New Haven & Hartford Railroad, S. Station, Boston.

NFBC: National Film Board of Canada. Branch offices: 400 W. Madison St., Chicago, Ill.; 1270 Ave. of the Americas, New York City 20.

N J Zinc: New Jersey Zinc Co., 160 Front, N. Y. City 7.

Norfolk RR: Norfolk & Western Railway Co., Roanoke, Va.

Norton: Norton Co., 1 New Bond, Worcester 6, Mass.

N Y Central: New York Central System, Motion Picture Bureau, 230 Park Ave., N. Y. City 17.

NYU: New York University, College of Engineering, University Heights, N. Y.

OIAA: (Write Motion Picture Division, Library of Congress, Wash. 25, D. C., also local and state film libraries.)

Oilgear: Oilgear Co., 1403 W. Bruce St., Milwaukee 4, Wisc.

Otis: Otis Elevator Co., 670 Fifth Ave., N. Y. City.

OWI: See OIAA.

Packard: Packard Motor Car Co., Box 117, 1580 E. Grand Blvd., Detroit 32, Mich., Packard Electric Division, Warren, Ohio.

Pan American: Pan American Union, Section of Motion Pictures, Washington 6, D. C.

Penn Mfg.: Penn Manufacturing Co. 1841 Broad St., Hartford 1, Conn.

Penn State: Pennsylvania State College, Central Extension Office, State College, Pa.

Perfect Circle: Perfect Circle Co., 552 S. Washington, Hagerstown, Ind.

Ph Dodge: Phelps-Dodge Refining Corp., 40 Wall St., N. Y. City 5.

Photo: Photo Films of Los Angeles, 4310 Greenbush Ave., Van Nuys, Calif.

Photoart: Photoart Visual Service, 844 N. Plankington Ave., Milwaukee 3, Wisc.

Pict Films: Pictorial Films, Inc., RKO Building, N. Y. City 20.

Pittsburgh: Pittsburgh Plate Glass Co., 2200 Grant Bldg., Pittsburgh 19, Pa.

Polaroid: Polaroid Corp., Film Division, Cambridge 39, Mass.

Portland Cement: Portland Cement Association, 33 W. Grand Ave., Chicago.

Princeton: Princeton Film Center, Princeton, N. J.

Proto: Proto Tool Co., 2209 Santa Fe Ave., Los Angeles 54, Cal.

Public Roads: Federal Works Agency, Public Roads Administration, Div. of Visual Education, Wash. 25, D. C.

Purdue U: Purdue University, Lafayette, Ind.

Purinton: Robert F. Purinton, 4404 42nd St., San Diego, Cal.

Purolator: Purolator Products, Inc., 144 Broad St., Newark 2, N. J.

Putman: Putman Publishing Co., 737 N. Michigan Ave., Chicago 11, Ill.

Quimby: Quimby Pump Co., 340 Thomas St., Newark, N. J.

Quincy: Quincy Compressor Co., Quincy, Ill.

RCA: Radio Corporation of America, Front and Cooper Sts., Camden, N. J.

Reid H. Ray: Reid H. Ray Films, Inc., 2269 Ford Rd., St. Paul, Minn.

Rep Steel: Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio.

Research Inst: Research Institute of America, 292 Madison Ave., New York City 17.

See & Hear NEWS LETTER

University Film Production Crews Serve U. S. International Program

♦ Six or more American universities and colleges are participating in the production of motion pictures in the Middle East for the State Department, with units from the University of Minnesota, University of Southern California and Syracuse University heading the work. Groups organized stateside are editing and assembling the films as they arrive.

The project is to be a significant contribution of the State Department to international education and information. The motion pictures, chiefly on agricultural, health and vocational subjects, are part of the overseas program, which also includes press and publications activities, exchange of students and national leaders, libraries and institutional activities, and the "Voice of America" broadcasts.

The comprehensive nature of the coverage is reflected in the fact that some 150 U. S. Foreign Service agencies have film libraries, averaging 300 titles and running as high as 750 productions, many of them in the language of the country in which they are distributed.

The procedure is to lend the productions and projectors without charge, often in blocks to private organization and government ministries, especially in health, agriculture and education, while the State Department's own mobile units present the films in rural areas.

Heading the U.S.C. group is Dr. Max T. Krone, dean of the Southern California Institute of Arts, audio-visual specialist and authority on folk music. With him are Robert Hall, coordinator of a-v education for the Los Angeles County superintendent of schools and cinema teacher at the University, who is supervising and writing scripts on the Middle East productions; William F. Lowdermilk, director, who recently completed a production on the Future Farmers of America; John Raymond, staff technician, cameraman and unit manager; and Irvin Kershner, professional photographer, and University student of cinema. Editing will be headed by Assistant Professor Wilbur T. Hume.

The unit from U.S.C. has a sound truck and trailer with 16mm cameras, a generator and portable lighting plant.

Dr. Don Williams, Syracuse University's coordinator of audio-visual services, was overseas last month setting up the mission and will return to the Middle East in June.

For the Syracuse unit William Clifford is directing production in the field; Mrs. Jane Clifford is assistant director, and Speight Cooper is script writer. The three are on leave of absence from the Southern Film Producers Association of Athens, Ga.

Miss Ann L. Myer, a-v instructor at Syracuse, is with the unit as business manager.

Sol Dworkin is in charge of stateside operations for the unit at Syracuse. Miss Luella V. Snyder is in charge of assembling the film and William F. Gelabert is overseeing the shipment of supplies.

How to Obtain Copies of THE INDEX

♦ Only 32 of 90 pages containing more than 2900 authenticated motion pictures and filmstrips for training classroom use are presented in this issue of SEE & HEAR.

The rapid growth in the utilization of the audio-visual vehicle for training is registered by the fact that 1,000 more titles are represented than were recorded in the Second Edition.

Schools, particularly vocational departments, may obtain complete copies of THE INDEX OF TRAINING FILMS, Revised Third Edition, at special 25% reduction until May 1. The regular edition is $2.00 but orders to THE INDEX OF TRAINING FILMS, 150 E. Superior St., Chicago 11, mentioning SEE & HEAR will be filled at only $1.50 per copy.

Cleveland Public Library Presents Third Annual Travel Film Series

♦ For the stay-at-home and for the tourist who can't quite make up his mind, the Cleveland Public Library is presenting its third annual series of free travel film programs on eight consecutive Monday nights, starting April 9th.

The general destination of each program's interest is told in the titles, which also might be clues to classroom social study scheduling. They are: *Grand Canyon* and *Yellowstone; Glacier Park and the Canadian Rockies* and *You'll Take the High Road; Skyway to Mexico* and *Mexican Potters; Highway to Hawaii; England: Background of Literature, Gardens of England* and *Snowdonia; Rome, Florence* and *Venice; Picturesque Sweden* and *Majestic Norway;* and finally *Wings to France.*

Dent Addresses Canadian Educators

♦ Latest techniques in 16mm production, film development, distribution and utilization of films for classrooms in the United States were placed before Canadian leaders by Ellsworth C. Dent, Coronet Films' director of distribution, in talks before the three group conferences at the 91st convention of the Ontario Educational Association in Toronto.

New Technique Improves Toledo's Audio-Visual Aids Presentation

♦ Problems of faulty acoustics in the auditoriums of Toledo's older school buildings are being solved by the board of education by installing noncombustible Fiberglas tile. Besides a noise reduction coefficient up to 85 per cent, the product helps cut down fuel costs because of its thermal insulating value.

George Hammersmith, supervisor of the visual aids department of the

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board, pointed out that the installation of the perforated, white and beveled tile in the ceiling of the auditorium at the Sherman grade school "means that the natural voice, reproduced on film sound-track, radio or recordings, as well as all sound, will be free from disturbing distortions."

Mourn Death of Patience Meservey

♦ Audio-visual leaders were saddened by news of the death of Mrs. Patience Meservey, wife of Dr. E. A. Meservey of Simmel-Meservey, Inc., producers and distributors of educational films and records. Mrs. Meservey died February 26th.

Galon Miller Joins South Bend Schools As Aid to Garret Weathers

♦ Galon R. Miller has joined the Audio-Visual staff of the South Bend School City as assistant to Garret R. Weathers, Director of Research and Audio-Visual Education. He has been Audio-Visual Director in the Wabash city schools for five and one-half years where he produced a weekly dramatic show on the local radio station. Before entering teaching, he spent a number of years in the motion picture theatre first as a projectionist and the last six years as manager. This experience gives him a broad concept of the audio-visual education program.

At present he is completing a two-year research on "A Comparison of the Teaching Effectiveness of Teacher-Narrated Film and the Standard Sound Film."

Melvin F. Schlake Named Executive A-V Director for Missouri Synod

♦ MELVIN F. SCHLAKE has been appointed executive director for audio-visual aids of the Missouri Synod of the Lutheran Church.

Mr. Schlake had been associated with the Kroger chain of stores and with the Mercantile Commerce Bank and Trust Company before entering the sales department of Concordia Publishing House, St. Louis. Through a developing interest in audio-visual aids, he became manager of the publishing firm's film department in 1946. Under his direction, the department has produced six films during the past five years.

The new post coordinates the audio-visual activities of Concordia Publishing House with those of the Board for Visual Education established by the Missouri Synod at its 1947 triennial convention.

Tools for Our Defense

THESE AUDIO-VISUAL PROGRAMS SERVE THE NATION'S NEEDS

EB Films Presents "Atomic Alert" Featuring Noted Atom Scientists

♦ Protection against the atomic bomb is the theme of *Atomic Alert*, made in collaboration with the Institute for Nuclear Studies of the University of Chicago, by Encyclopaedia Britannica Films, Wilmette, Ill., producer and distributor.

Noted scientists appear in the production, among them Enrico Fermi, who was a leader of research on the first atomic bomb; Samuel K. Allison, director of the Institute for Nuclear Studies; Willard F. Libby, known for his study of radioactive isotopes; and E. O. Lawrence, of cyclotron fame.

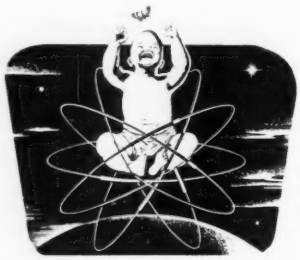
Johns-Hopkins Science Review TV Program on Biological Warfare

♦ What thinking Americans can do to eliminate scare-talk about the use of germs and toxins as war weapons was one of the objectives of a telecast, "The Truth about Biological Warfare," presented April 3rd on the Johns-Hopkins Science Review, by WGN-TV and the DuMont Network.

Authorities on the subject demonstrated which germs and toxins could be used in such an attack and what the overall defense could be made. Speakers called hysteria a greater source of danger than the germs. The program, given in cooperation with the United States Civil Defense Administration, was coordinated with a pamphlet, sequel to the booklet on "Survival under Atomic Attack."

NBC Releases Recorded Version of Famed "Quick and Dead" Program

♦ The recorded version of "The Quick and the Dead," National Broadcasting Company's documentary broadcast series of last summer, which brought such a volume of mail that it was rebroadcast within a month, is an early April release by RCA Victor.



The records in the two-volume Red Seal album are available in all three speeds.

Atomic energy as a force for the good of mankind, not as an engine for war, is the message of the series. Dramatically and simply the broadcasts trace the history of the atomic bomb and the hydrogen bomb. The voices of international leaders in science and government are heard. William L. Laurence is the narrator, Bob Hope the taxpayer who wants to know.

SVE Presents Complete First-Aid Course of 19 Individual Filmstrips

♦ Educators will have a vital responsibility in the American Red Cross program to train up to twenty million Americans in first aid. To that end the Society for Visual Education, Inc., 1345 W. Diversey Parkway, Chicago 14, Ill., is offering a complete visual course of 19 individual filmstrips (three in color) including 1,000 individual pictures. Running times vary from six to thirteen minutes. There is music incidental to the commentary in all cases and an instruction manual is provided for both sound and silent sets. The recordings operate on a 33⅓ r.p.m. turntable and contain signals for changing pictures.

Following are the titles of the filmstrips:

Introduction to First Aid; The Human Body; Miscellaneous Injuries; Transport and Reception; Artificial Respiration; The Treatment of Wounds (color); Routine Examination of the Victim; Joints, Muscles, Nervous System; Shock (color); Poisons; The Application of Bandages; Dressings, Bandages and Slings; Transport with a Stretcher; Fractions and Their Diagnosis; Treatment of Fractures; Insensibility with Breathing Present; Insensibility with No Breathing; Internal Injuries and Special Hemorrhages; and Circulation of the Blood and Types of Wounds (color).

Many Defense Subjects Available

♦ Assurance that the U. S. has numerous already available audio-visual aids for defense training is given in most current film library catalogs. Use them.

New Films and Film Strips

CLASSROOM MATERIALS FOR ALL THE GRADE LEVELS

20 Biographies of Great Americans

♦ Biographies of twenty great Americans, all 20-minute films recommended for junior and senior high school classes in history, English and social studies, and for adult groups, are available from Encyclopaedia Britannica Films, Inc., of Wilmette, Ill., or through your nearest EBF representative or regional library.

Nine films are on great statesmen, five on explorers, and six discuss writers. Rental rates for the subjects are $4.50, purchase $65.

"Squeak the Squirrel" Makes Debut

♦ A new classroom film intended primarily for elementary grades, is *Squeak, the Squirrel*, from Churchill-Wexell Film Productions, maker of *Wonders in Your Own Back Yard*, science film recently reviewed in SEE & HEAR. The latest production was made in collaboration with Dr. Lester F. Beck, who served also on *Human Growth* and *Human Beginnings*. For prices write the company, at 137 No. La Brea Ave., Los Angeles 36, Calif.

Producers Offer Two New Films on Human Relations Subjects

♦ Two new discussional motion pictures on human relationships, one for school grades 5 to 9, the other at the college level, are *The Other Fellow's Feelings*, Young America Films, Inc., and *Marriage Is a Partnership*, Coronet Films.

The YAF production, the first of a series on "Discussion Problems in Group Living", presents the problem of sustained teasing or ridicule, and puts it up to the audience to seek solutions. The 10-minute sound film is purchasable at $45 and may be rented. Address your nearest dealer or write the home office at 18 E. 41st St., New York City 17.

The Coronet staff had the collaboration of Dr. Lemo D. Rockwood, professor of family relationships at the New York State College of Home Economics at Cornell University, in making the 15-minute 16mm sound film on the cooperative partnership idea for adjustment to environment and individual in the first year of married life. For rental address any of the 200 rental libraries at which the film is available; for purchase write to Coronet Films, Coronet Building, Chicago 1, Ill.

Association Films Acquires Rights to All Flory Films Materials

♦ In acquiring exclusive sales and rental rights to eight 16mm sound motion pictures and five filmstrips formerly released by Flory Films, Inc., Association Films adds the following motion pictures: *Airlift to Berlin; Alaska; Global Crossroads; Coal Country; Paper Forests; Proper Steps; Sitting Right; Weaving Homespun*; and *Your Career in Aviation*. The 35mm filmstrips are a *Picture Stories* series on Ancient Egypt, Ancient Greece, Ancient Rome, Knights and Castles, and Monastic Life. For rental and purchase prices write Association Films, Inc., 347 Madison Ave., New York City.

"Mental Mechanisms" to McGraw-Hill

♦ With the addition of *Feelings of Depression*, latest 16mm sound release of the National Film Board of Canada (Reviewed in SEE & HEAR for January, 1951), the McGraw-Hill Text-Film Department becomes sole U. S. distributor for all four films in the Board's Mental Mechanism Series, also for the two films in the Ages and Stages Series and the two in the Home and Family Series.

Jo Davidson's Story in Pictures

♦ Contributions to art by Jo Davidson, sculptor, and their impingement upon American life, through a period of two world wars, are presented in *Men of Our Age*, an Official Films release. For an effect of mobility unusual camera techniques were used in photographing the works at the National Institute of Arts and Letters and the American Academy of Arts and Letters. For further information on the 10-minute subject, in black and white, address Official Films at Grand and Lincoln avenues, Ridgefield, N. J.

A SCENE *from one of the six new color slide-films "At Home and School With Tom and Nancy" recently released by The Jam Handy Organization for primary grade purchase and use.*

LIVES *of great Americans are depicted in current EB Films series which include "Alexander Hamilton," 20-minute sound subject, from which this dramatic scene is taken.*

The Films of Norman McLaren

♦ Design for filming, well known in the so-called abstract films in which Norman McLaren has applied the results of experimentation to tie up emotion and mood with patterns of sound, motion and color, is accented in three generally acclaimed productions, *Fiddle de Dee, Stars and Stripes*, and *Hen Hop*, purchasable singly or as a set, from the International Film Bureau, Inc., 6 N. Michigan Ave., Chicago 2, Ill. The pictures were made for the National Film Board of Canada and are distributed exclusively by IFB in the United States.

Stars and Stripes, latest McLaren release by IFB, is one of his experimental films out of which came a chromatic scale over a five-octave range with a dozen percussive timbres and ten levels of dynamics. The title in eight languages is developed to a musical accompaniment inscribed directly on the film. In *Fiddle de Dee*, honored at the World Film Festival in Chicago and the Brussels Film Festival, celluloid dyes, inks and transparent paints were applied to the film.

(CONTINUED ON THE NEXT PAGE)

NEW FILMSTRIPS

♦ From Ancient Egypt to sandwiches and from nature studies to the activities of American summer students in Israel, newly released filmstrips run the gamut of subject matter for classroom interest.

For example, Simmel-Meservey, Inc., of 321 So. Beverly Drive, Beverly Hills, Cal., has completed a set of filmstrips in color on *Ancient Egypt, Ancient Greece, Modern Egypt, Ancient Rome* and *Modern Rome*. On the home economics side are six "Let's Make" pictures, in collaboration with the American Gas Association, on pie, cake, salad, casserole, a meal in 20 minutes, and a sandwich.

"History of Dress" in Filmstrips

♦ Another bid for home economics attention comes from a set of four filmstrips on the *History of Fashion in Dress*, made cooperatively by the Society for Visual Education, Inc., and the Charles A. Bennett Company, based on the works of Katherine Morris Lester. The set, selling at $12, takes up hats, wigs and hairdresses (29 frames), earrings, necklaces, collars and cuffs (32 frames), hose and shoes (31 frames) and rings, gloves and fans (39 frames). Address the S.V.E. at 1345 W. Diversey Blvd., Chicago.

Summer Visit to Israel Shown

♦ Israel through the eyes of American youth, and the summer institutes conducted annually for students of all creeds, are the subjects presented in *Israel Is Our Neighbor*, 20-minute color filmstrip now being released by the Summer Institute Division of the Jewish Agency for Palestine and the New York University Jewish Culture Foundation. The production takes one to Israel's classrooms, farms, factories and historic sites.

Prints are purchasable from commercial dealers, direct from the Agency, 16 E. 66th Street, New York City 21, or from the Foundation, 2 Washington Square North, New York 3.

N. Y. Times' "Southern Neighbors"

♦ Why the Americas must build up strength through cooperation to push back the influx of Communism and Fascism is the theme of *Our Southern Neighbors*, 35mm filmstrip April release of The New York Times, Times Square, New York 13, N. Y. The series of eight Report on the News filmstrips is purchasable at $12, individual releases at $2.

University Film Production

MINNESOTA'S FILMS REFLECT SPECIFIC LOCAL INTERESTS

♦ The increased output of educational films by the University of Minnesota is consonant with the dedication note on University letterheads that "men are ennobled by understanding." Audio-visual service in instruction, welfare and the "search for truth" is reflected in the release of seven new subjects in the past year by the production department.

The Minnesota Museum of Natural History cooperated on three bird study films: *Duck Hunters' Dilemma* (20-minute, sound, color, $170), giving the results of five research studies of the problem of fewer birds versus more hunters; *Waterfowl in Action* (10-minute, sound, color, $90), for grade 3 to adults; and *Cultivate Your Garden Birds* (10-minute, sound, color, $90), with suggestions by Dr. Walter J. Breckenridge, museum director, for all age levels.

The latest production, for high school and college classes, is *Weighing with the Analytical Balance* (15-minute, sound, $63), combining close-ups with narrative for quick learning of techniques.

Minnesota's State Board of Health collaborated on *Safe Drinking Water from Small Water Supplies* ($45) and *Contamination of Water Supplies by Back Siphonage* ($60). A third in the field, *Tale of the Twin Cities* ($170) is a color filming of the story behind the construction of the ultramodern plant for chemical treatment of sewage.

Additional technical films include two on dentistry: *Immediate Denture Service* ($230) and *Denture Service* ($130), and one on *Mechanics of Vibration* ($30). The work of the public health nurse is the subject of *Friend in Blue* ($236) and *Report on Donald* ($80) concerns the speech and hearing clinic. Two historical subjects are *Minnesota Document* ($135) and *Navajo Country* ($90). Two other recent films, both in color, are *Modern Milk Marketing* ($170) and *White Grubs* ($130).

A special endeavor of the Audio-Visual Education Service was *Minnesota Profile*, produced for the University Centennial Committee. The 30-minute 16mm sound film, available to schools and groups in Minnesota for only transportation charges and $1 service charge, had the cooperation of hundreds of individuals in the research work, 400 citizens portraying the characters, Earl George of the Department of Music, who did the music score, and a Centennial Orchestra.

UCLA Presents Film on Projection

♦ Among teaching films newly forthcoming from the audio-visual production departments of our state universities are three from the University of Washington, a pair from Indiana U and one from the University of California.

Of potential interest to every user of films in the classroom but also for church, club or outdoor showing, is *Projecting Motion Pictures*, sound film running 10 minutes. The picture follows a projectionist through all the steps to insure maximum service to the audience. Renting at $2 and selling at $45 (less 10 per cent to educational institutions), prints may be had by addressing the Educational Film Sales Department, University Extension, University of California, Los Angeles 24, Calif.

Two Films on Prehistoric Indians

♦ Two film treatments of the prehistoric American Indian, one for intermediate and junior high school students, the other for seniors, are *A Glimpse of the Past* and *Learning about the Past*, both running 10 minutes and available in color or black and white, from the Audio-Visual Center, Indiana University, Bloomington, Ind., or the Educational Film Library Association, Suite 1000, 1600 Broadway, New York City 19. The color version is purchasable at $90, the black and white at $45.

Background for Educational Television

EDUCATORS AIM TO HARNESS THE VIDEO GIANT WHILE DEBATE GROWS ON COSTS AND PRACTICALITY PENDING FCC DECISION ON CHANNELS

THE ESTIMATED TWENTY MILLION VIEWERS of the Kefauver Committee proceedings televised these recent weeks not only stopped a lot of metropolitan business cold while they watched the "show-up" of crime and politics . . . their intense interest, their numbers, and the nature of the event have reminded a good part of the country of the power of this medium.

As if suddenly aware of implications of that power, the Senators took the sessions off the air in its later phase. But Americans, young and old (some schools suspended classes to watch the event), had experienced a new and vastly significant development in our communications.

By coincidence, a new Federal Communications announcement that an early end to the present "freeze" on new TV stations was contemplated, that hearings would be held on the subject later in the Spring. Educational televisers were assured, it seemed, of at least 10% of any new approved channels.

TELEVISION A FOCAL CENTER OF PUBLICITY

As its financial problems, competitive angles, program events, and inherent power remain in the public eye, television continues to attract the pioneer spirit of many far-sighted educators, with varying aims and viewpoints which might be cited thus:

(1) those who realize that commercial television has thus far made little cultural contribution to its audience. They note the Smythe-Horton report which showed the very low percentage of educational fare of any kind on seven N. Y. stations observed for seven consecutive days.

(2) those who believe that commercial television cannot be depended on to increase its "public service" contribution—that education must provide its own outlets for which it has requested new channels.

(3) an active but relatively small minority of radio and visual education leaders who are trying to work *with existing commercial channels* in their vicinity. Newark, Baltimore, Salt Lake City, St. Louis, and Philadelphia are locales where good work has been done along these lines.

Educational broadcasters acted with what Edgar Dale calls "unusual unanimity" at the recent television hearings of the Federal Communications Commission to win and hold their share of the present and future channels. But whatever the extent of their victory, a very careful examination of the full aspect of this medium should be made. It is indeed surprising that no thorough and positive study is available on the total implications to date of educational broadcasting itself, for example, in terms of total listener audience (in school and out); costs, amount of receiver equipment in use, etc.

Educational telecasters, actual and hopeful, were apparently saying that when they operated stations, schools should acquire viewing equipment. Or were they limiting this possible service to an adult education program? In this field there was need for thinking. As the FFC's able Commissioner Frieda Hennock (a staunch supporter of educational channels) cited: "adult night school attendance dropped in 50 cities with television while in cities without television adult education actually continued on the upswing."

But U. S. education, still unable to complete the formidable task of equipping itself for classroom utilization of the simplest visual education tools such as the opaque or filmstrip projector (much less the sound projector) was in some danger of "video-itis" to at least a few conservatives.

HERE'S WHAT HAPPENS AT IOWA STATE

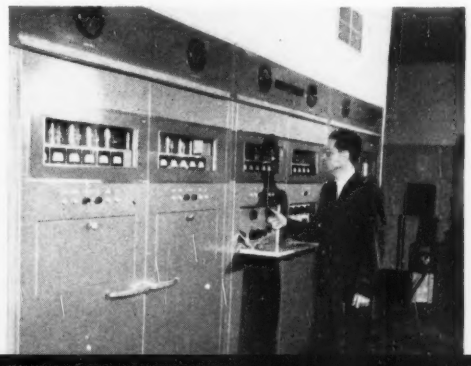
The cost of a TV station installation ranges from $175,000 (the actual cost of Iowa State's WOI-TV) to $500,000 (a fair-sized commercial installation). To keep WOI-TV going from 11:30 a.m. to 11 p.m. daily, this *first and only TV setup in the nation wholly owned and operated by an educational institution* provides the same identical fare to its 500,000 central Iowans as all the other commercial stations in the country. Amidst the comedy hours (including Milton Berle), the soap operas, the musicals, and other network shows, a total of two hours in WOI-TV's weekly program is "educational" and that largely a local newsreel. Like the football team, TV is a potential moneymaker but that doesn't seem to be the objective educators were aiming at in idea communications.

The legislative request of the University of Iowa for $300,000 in state funds to finance a similar station at Iowa City is pending an FCC permit request for the proposed WSUI-TV, delayed by the "freeze." The chips in this game cost real money. Will Iowa support the daily cost of programming, film rentals (TV rental rates are

(CONTINUED ON THE FOLLOWING PAGE)

ST. LOUIS SCHOOLS *utilized existing commercial channels to show adults useful work of schools as in this conservation field trip program.*

IOWA STATE COLLEGE *is telecasting commercially with this modern $175,000 WOI-TV installation being inspected by chief engineer Louie Lewis.*



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• NEW HAMPSHIRE •

A. H. Rice Co., Inc., 78 West Central Street, Manchester.

• NEW JERSEY •

Slidecraft Co., South Orange, N. J.

• NEW YORK •

Association Films, Inc., 35 West 45th St., New York 19.

Council Films, Inc., 50 N. Main St., Homer, N. Y.

Jam Handy Organization, Inc., 1775 Broadway, New York, N. Y.

Visual Sciences, 599SH Suffern.

• PENNSYLVANIA •

Jam Handy Organization, Inc., 930 Penn Ave., Pittsburgh 22

Karel Sound Film Library, 214 Third Ave., Pittsburgh 22.

SOUTHERN STATES

• FLORIDA •

Norman Laboratories & Studio, Arlington Suburb, Jacksonville 7.

• LOUISIANA •

Jasper Ewing & Sons, 725 Poydras St., New Orleans 12.

• MISSISSIPPI •

Jasper Ewing & Sons, 227 S. State St., Jackson 2.

• TENNESSEE •

Southern Visual Films, 686-689 Shrine Bldg., Memphis.

MIDWESTERN STATES

• ILLINOIS •

American Film Registry, 24 E. Eighth Street, Chicago 5.

Association Films, Inc., 206 S. Michigan Ave., Chicago 3.

Jam Handy Organization, Inc., 230 N. Michigan Ave., Chicago 1.

Swank Motion Pictures, 614 N. Skinker Blvd., St. Louis 5, Mo.

• IOWA •

Ryan Visual Aids Service, 409-11 Harrison St., Davenport.

• MISSOURI •

Swank Motion Pictures, 614 N. Skinker Blvd., St. Louis 5, Mo.

• MICHIGAN •

Jam Handy Organization, Inc., 2821 E. Grand Blvd., Detroit 11.

• OHIO •

Academy Film Service, Inc., 2300 Payne Ave., Cleveland 14.

Sunray Films, Inc., 2108 Payne Ave., Cleveland 14.

Jam Handy Organization, Inc., 310 Talbott Building, Dayton 2.

WESTERN STATES

• CALIFORNIA •

Coast Visual Education Co., 5620 Hollywood Blvd., Hollywood 28.

Jam Handy Organization, Inc., 7046 Hollywood Blvd., Los Angeles 28.

Association Films, Inc., 351 Turk St., San Francisco 2.

• OREGON •

Moore's Motion Picture Service, 306 S.W. 9th Avenue, Portland 5.

• TEXAS •

Association Films, Inc., 1915 Live Oak St., Dallas 1.

Audio Video, Incorporated, 4000 Ross Avenue, Dallas 4, Texas.

George H. Mitchell Co., 712 N. Haskell, Dallas 1.

• UTAH •

Deseret Book Company, 44 E. So. Temple St., Salt Lake City 10.

CANADA

Audio-Visual Supply Company, Toronto General Trusts Building, Winnipeg, Man.

Background for Television:

(CONTINUED FROM THE PRECEDING PAGE)

based on total audience), personnel, maintenance, etc. on the "commercial" pattern set by Iowa State or keep its dignity and, by dictate or dogma, purvey pure culture during its operating hours?

It is very clear that what is arising here is a real and two-fold problem. On one hand educators are making their case for the set-aside of one-seventh of all available TV channels on the assumption that they will provide the public's educational fare, relieving commercial broadcasters of this responsibility. On the other, in actual practice, the first and only educational telecaster operating in the field is purveying pure entertainment to meet the bills.

It goes deeper than that, for as Gilbert Seldes has pointed out, "if general cultural interests are represented on separate channels, the foundation of a true democratic broadcasting system is undermined." *Entertainment only* purveyed on channels 1 to 6 and *education only* purveyed on channel 7 is damning to both sides—for the commercial telecaster it is a degeneration leading to the low standards of the movies or radio—and for the educator an impossible economic dilemma in both production quality and operating costs.

So the beginning. For educational television is not so distant a prospect as those who would reserve channels "for the unforeseen future" have indicated. It exists in fact at WOI-TV and impends, in a different way perhaps, at East Lansing, Michigan, where they are "confident that our planning will eventually make Michigan State College the center of educational television research and development in the United States."

High schools to date have acquired just one sound projector apiece. According to the U. S. Office of Education they would increase that number gladly, for better classroom utilization of existing films, as the curriculum provides for their need and use, but lack of funds is the principal deterrent. Perhaps U. S. education was nearing the point where it would have to decide which *first things* it wanted first and which it needed most.

NBC-TV'S "ZOO PARADE" *featuring commentator Jim Hurlbut (left) and Lincoln Park Zoo director R. Marlin Perkins (right) is deemed among the best of commercial television's educational contributions . . . but they are too few, say educators.*

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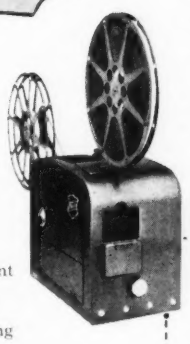
*Recent photo of Mr. Harry Mathews, principal of Franklin Junior High School, Racine, Wisconsin . . . operating a Bell & Howell Filmosound projector purchased from Photoart Visual Service, Milwaukee, and used continually since 1937.

Modern school officials concerned with making their audio-visual equipment dollars go further, will be interested in the experience of Mr. Harry Mathews, Principal of a Racine, Wisconsin, public school. Mr. Mathews writes:

> "...we also have a #165481 purchased January 18, 1937 that has run an average of 250,000 feet of film per year and is still operating perfectly."



The model mentioned above is one of the earlier Bell & Howell sound film projectors. Typical of B&H engineered products, it has given more than 1600 hours of flawless, uninterrupted performance. And, with normal care, it can be expected to give its owners many more years of excellent service.

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